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MONTHLY REPORT

OF THE

DEPARTMENT OF AGRICULTURE.

JANUARY AND FEBRUARY, 1876.

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MONTHLY REPORT.

DEPARTMENT OF AGRICULTURE,
Statistical Division, January 31, 1876.

SIR: I herewith submit a digest of January returns of the comparative numbers and home prices of farm-animals in the several States, with the respective rate of yield and current prices in December of the principal farm-products of last season. I include, also, material from the chemist, microscopic observations, and minor facts in statistics and agriculture.

J. R. DODGE,
Statistician.

Hon. FREDERICK WATTS,
Commissioner.

DIGEST OF MONTHLY RETURNS.

The present report contains digests of the returns made in January of the present year of comparative numbers and prices of farm-animals; and also of the returns of the yield per acre and prices of farm-products. These returns, in connection with the previous returns of quantity of farm-products, form the basis, when carefully combined and analyzed, of the estimates of the year, which are published in the annual volume.

COMPARATIVE NUMBERS AND PRICES OF FARM-ANIMALS.

NUMBERS.—The numbers of farm-animals, as indicated by the estimates of correspondents, are not keeping pace with the advance of the country in population. Horses appear to have made the greatest increase, amounting to about 3 per cent.; cows are more numerous by 1 or 2 per cent., while other descriptions of cattle have not increased. Sheep are found in larger numbers only in the more western States, the aggregate being little larger than that of last year. Swine appear to have decreased about 8 per cent. This may be correct, as no stock of the farm is so subject to rapid fluctuations in numbers, very few being kept more than two years, and quite a large and increasing proportion of pigs being killed before a year old. The States showing the largest increase in cattle are Nebraska, Oregon, Minnesota, Louisiana, Iowa, no others having more than 3 per cent. advance. Minnesota, California, Oregon, and Arkansas have the largest percentages of milch-cows.

Nebraska shows the largest proportion of horses, in comparison with last year's record, followed by Oregon, Texas, Arkansas, Iowa, Kansas, West Virginia, and North Carolina. The largest increase in sheep is in Kansas, Nebraska, Florida, Texas, Minnesota, and Oregon.

PRICES.—The prices of horses of all ages appear to have retrograded very generally during the year. The only exceptions are Texas, Kansas,

and Nebraska. In Texas there is a tendency to advance in all kinds of farm-animals, in part from relative decrease in numbers, and also because of increasing facilities for meeting the demand from other States, and from the improvement of animals by breeding and care. The decrease is only nominal in Arkansas and Tennessee. It is greatest in the Eastern States. The following figures may be deemed representative of the prices in districts indicated by the States named:

States.	1876.				1875.			
	Under one year old.	Between one and two years old.	Between two and three years old.	Over three years old.	Under one year old.	Between one and two years old.	Between two and three years old.	Over three years old.
Massachusetts	$30 00	$48 33	$72 66	$108 33	$44 17	$66 66	$95 00	$135 00
Pennsylvania	34 58	54 72	80 45	108 39	37 02	63 72	92 25	123 20
North Carolina	31 31	48 16	67 92	90 00	33 73	52 54	75 96	96 74
Mississippi	27 41	42 79	62 35	89 00	28 70	45 75	65 00	94 20
Texas	13 04	19 32	28 28	45 50	13 11	19 77	28 26	44 81
Kentucky	26 25	39 60	55 30	75 00	26 55	40 46	57 19	78 00
Iowa	26 73	40 60	59 52	84 88	27 18	41 50	61 58	85 47
Oregon	19 00	27 50	39 28	60 43	19 30	28 00	39 50	60 30

The value of mules has declined very materially from New York to Florida. In Alabama the downward tendency is checked by prosperous cropping, a disposition being manifested to encourage home supplies, placing the prices for young mules higher than in 1875. There is no material falling off in Mississippi, and in Texas there is a slight advance, as in the case of horses. Prices are pretty well sustained in Arkansas, and in Tennessee. In the Western States the decline is quite sharp, as shown by the following table:

States.	1876.				1875.			
	Under one year old.	Between one and two years old.	Between two and three years old.	Over three years old.	Under one year old.	Between one and two years old.	Between two and three years old.	Over three years old.
Georgia	$31 34	$50 69	$79 11	$99 00	$40 30	$65 00	$96 25	$115 50
Mississippi	32 00	50 50	74 50	102 70	31 33	50 20	76 50	102 10
Tennessee	32 80	49 02	72 50	90 00	33 53	51 58	75 00	93 30
Kentucky	29 24	46 70	68 50	88 72	30 71	47 70	70 10	91 91
Indiana	28 81	45 59	68 67	96 15	31 79	48 88	71 34	97 77
California	23 00	34 33	55 00	93 50	20 95	32 53	52 38	88 39

The rates for milch-cows are not sustained in the Eastern States, except in Connecticut and Massachusetts. The average is the same as that of last year in New York, a decline being perceptible in the remaining Middle States. There is an increasing demand in Maryland and Virginia, States well suited to dairying, and prices have advanced somewhat. In the Carolinas and Georgia the rates sympathize with the prevailing downward tendency. From Florida westward along the Gulf coast, and in Arkansas and Tennessee, prices are higher, the greatest proportionate increase being in Texas. In every State of the great interior valleys there is an increase, except in Nebraska, where prices ruled very high last year. On the Pacific coast the high California rate

of last year is not fully sustained. A comparison with last year is made in the rates of the following States:

Year.	New York.	Virginia.	Georgia.	Texas.	Ohio.	Wisconsin.	Missouri.	Oregon.
1876	$37 50	$22 77	$17 02	$15 72	$32 65	$26 75	$20 86	$21 75
1875	37 50	22 94	18 85	13 33	30 42	26 37	19 50	21 65

The class including all cattle except cows exhibits no very sweeping changes. The abundance or scarcity of supplies for winter use causes local changes. In the Eastern States, prices are firmer in Vermont and Massachusetts; in Pennsylvania, in the Middle States; in Maryland, North Carolina, Alabama, Texas, the more eastern States of the Ohio Valley, with a positive rise in the district west of the Mississippi. There is little decline in New York, Delaware, Virginia, South Carolina, Mississippi, Wisconsin, and Minnesota. There is some decrease in several of the New England States, in New Jersey, Georgia, and little in Indiana and Illinois, except that in the latter prices of matured stock are well sustained. The following comparison is made:

States.	1876.				1875.			
	Under one year old.	Between one and two years old.	Between two and three years old.	Over three years old.	Under one year old.	Between one and two years old.	Between two and three years old.	Over three years old.
Maine	$10 89	$20 43	$33 19	$58 92	$11 56	$21 12	$34 09	$63 00
New York	10 31	19 40	32 08	51 96	10 45	19 50	32 64	52 08
North Carolina	3 55	6 33	10 21	15 35	3 35	6 00	9 40	14 70
Georgia	3 97	5 97	9 29	13 47	4 10	7 00	10 75	15 00
Texas	3 54	5 87	9 13	14 18	3 18	5 28	8 16	11 82
Kentucky	8 22	14 72	24 32	36 05	8 28	14 25	22 12	34 53
Illinois	7 50	14 00	24 24	35 74	9 00	15 48	25 60	34 69
Missouri	6 41	11 56	18 59	28 81	5 58	10 00	16 42	24 25

The rates for sheep are not materially changed in the Atlantic States north of Virginia, or in the Gulf States. In the Southern Atlantic States and in the Ohio Valley there is a slight tendency to high rates, and in the Missouri Valley prices are still more advanced. The numbers of sheep on the Pacific coast are so increased that in dry seasons some districts are over-stocked, tending to decrease in prices, which is indicated to some extent in the present returns from California. The prices of full-grown sheep are thus reported in the following States:

Year.	Vermont.	Pennsylvania.	Virginia.	Georgia.	Texas.	Tennessee.	Ohio.	Illinois.	Nebraska.
1876	$3 97	$3 95	$3 15	$1 94	$2 29	$2 40	$3 09	$2 75	$3 00
1875	4 22	3 90	3 17	1 76	2 16	2 20	3 00	2 84	2 74

A slight increase in the prices of hogs is observed in New England, especially in those of more than one year old. There is an advance in the Middle States, in Virginia and North Carolina, but in South Carolina and Georgia prices are not fully maintained. In Arkansas and Tennessee, where supplies were scarce and high last year, with low prices for all kinds of stock, there has been a manifest advance the

present season. The Western States all return higher prices than last year. The following figures for old hogs will represent the general tendency of prices in the several sections, and for further comparison reference is made to the table:

Year.	New Hampshire.	New Jersey.	Maryland.	Alabama.	Arkansas.	Kentucky.	Indiana.	Iowa.	Kansas.
1876	$27 25	$20 50	$10 27	$6 07	$6 10	$10 19	$13 33	$13 75	$14 92
1875	24 00	18 75	9 73	5 81	4 46	8 67	9 30	12 13	6 67

A few extracts from remarks of correspondents are appended:

MAINE.—*Cumberland*: Milch-cows have increased in numbers on account of increased interest in dairying. *Piscataquis*: Great scarcity of money has made a complete stagnation in sales of stock of all kinds.

CONNECTICUT.—*New London*: The number of cattle is less than a year ago, as the farmers are working all they can into beef, to save hay.

NEW YORK.—*Erie:* The number of hogs has not varied much more for two or three years, but within that time their average weight has increased at least 30 per cent.; mostly by the introduction of Chester Whites. Western hogs are so liable to sicken and die, that they are growing into disfavor. *Delaware:* The short hay-crop caused the sale of nearly all the calves, and all animals fit for beef are slaughtered. *Sullivan:* The percentage of cattle reduced by scarcity of hay.

PENNSYLVANIA.—*Beaver:* The decrease in milch-cows is owing to the fact that farmers are quitting the shipping of milk to the cities. *Chester:* There is an increase in the number of horses and cows, the latter being usually bought from other sections; but fewer cattle are raised and there is a marked decrease in the number of oxen and other cattle. *Washington:* Few colts raised the last three or four years, and fewer this year than ever. Hogs are scarce and high. *Bedford:* Mules are being brought from Kentucky to take the place of horses on farms and manufactories. Many of our feeding-cattle are brought from the western markets, and 60 per cent. of the calves dropped go to the market before they are one month old. *Butler:* A plenty of good horses for all purposes for sale at low prices. As the country is becoming more settled, and the farms becoming better, sheep-raising does not pay so well, and consequently is decreasing. Hogs were never so scarce. *Elk:* Prices for stock are nominal, except for beef and hogs, which are in good demand. *Tioga:* Mules for the coal-mines are nearly all brought from New York State. *Erie:* Milch-cows have increased. Cheese-factories have sprang up in almost every town.

MARYLAND.—*Montgomery:* Hogs are scarce. Thrifty pigs, four weeks old, readily bring $2. *Prince George's:* We are raising more sheep than formerly, and there is an increase of interest in raising hogs. *Frederick:* Sheep-husbandry not increasing in respect to numbers rapidly, but improving in stock, principally long wool. Hogs rather scarce; no surplus. *Baltimore:* First-class horses in demand. Milch-cows in good demand and selling briskly.

VIRGINIA.—*Prince George:* The absence of fences prevents the increase of stock. The number on each farm is very limited. *Dinwiddie:* Raising more colts than usual; also raising more hogs for pork. The dairy business is growing in favor, and sheep-raising is on the increase. *Fauquier:* No calves raised except occasionally one for a breeder; all dropped being sent to market as veals. We buy sheep brought from the West, in the fall, winter and shear them; then sell both the old stock and the lambs and buy again. *Halifax:* The stock of hogs is smaller than for years; many have died of cholera, and some of measles and quinsy. *Cumberland:* The increase in the number of oxen is owing to the fact that the colored people, having with their labor purchased small tracts of land, are raising them for work. *Powhatan:* Farm-stock has been gradually increasing for several years. More attention is given to the raising of mules and horses than in any year since 1860. Many farmers have come to the wise conclusion that it is better to raise their stock of mules and horses than to trust to the machinations of horse-traders. Nearly every farmer of any note has also raised bacon enough for next year's consumption. *Sussex:* The fences were all destroyed during the war, and the utter impossibility of yet replacing them is the principal cause of the falling off in milch-cows. *Chesterfield:* The number of horses is kept up by new settlers from the North and West. Mules are chiefly used by the old residents, being considered more durable and valuable. Milch-cows are increasing in numbers and importance, as we improve our lands and increase the growth of grass and clover. There is a decided disposition to improve the quality of sheep. Two of my neighbors, northern settlers, have recently purchased one hundred and fifty and placed them on poor

fields, as an experiment. A decrease in the number of hogs, owing to the killing of many stock-hogs for pork, the price being $9 per hundred-weight. *Henrico:* A disposition to increase the number of stock-hogs, owing to the low price of corn. *Pittsylvania:* The hogs are of the inferior stock called "Virginia pine-rooters." *Orange:* The last five or six years, so fatal to young grass, have checked the increase of stock, and caused the sale of young cattle at almost any price.

NORTH CAROLINA.—*Chowan:* Cattle and hogs have decreased. Farmers will have to plant less cotton and raise more stock and grain, or they will soon play out. *Brunswick:* The marked decrease in milch-cows is owing to severe weather last winter; feed gave out, and they had to be turned out into the swamps. *Nash:* More inclination to raise cattle and sheep than for some years. *Hertford:* Stock of every kind are steadily increasing, save sheep, and they would do well but for the multitude of dogs.

SOUTH CAROLINA.—*Chester:* The freedmen are accumulating more stock, and take better care of it than formerly.

GEORGIA.—*Laurens:* Work-oxen are $30 to $60 per pair; beef-steers, at maturity, $20 to $30 each. *Montgomery:* Most of the horses and mules are brought here from Tennessee, Kentucky, and Indiana. *Gwinnett:* Horses, mules, and other stock are 20 per cent. lower in price than a year ago, owing to the low price of cotton and money-pressure. *Cherokee:* For the last few years we have been using commercial fertilizers to raise cotton, and neglecting out-stock. The consequence is that a large number of people have no meat-supply and no money to buy with. *Covington:* The hard winter of last year and the hog-cholera have reduced the number of our stock. *DeKalb:* Though sheep have suffered from dogs, more attention than formerly is being paid to sheep husbandry. The flocks are more closely watched and cared for. *Perry:* There is a decided disposition to raise more horses, cattle, and hogs.

MISSISSIPPI.—*Lauderdale:* Cattle and sheep have been diminished, owing to the high price of meat. The increase in provision-crops has caused an increased effort to raise hogs, and but for the persistent stealing of hogs by the negroes, the farmers of the county would raise their own pork. As it is, more will be raised here in 1876 than since the rebellion. *Noxubee:* Stock-hogs increased in number, and healthy. If the thieves will suspend, we will soon be self-sustaining. *Wilkinson:* More attention to the raising of hogs than for some years. Full-blooded Berkshires most in demand. Pigs six to eight weeks old sell for $20 per pair; young sows with pigs, at $20 or more each. Inferior hogs cheap. *Coahama:* The raising of hogs has almost ceased in consequence of depredations by the freedmen. This evil seems to have no remedy. *DeSoto:* More meat killed than for years, and we are becoming independent in the way of "hog and hominy." *Lee:* Stock-raising is losing ground. Hogs over one year old are now scarce, from the fact that mast and corn were plenty, and meat is scarce and high. *Jefferson:* More attention is being paid to the raising of horses, cattle, sheep, and hogs than ever before.

ALABAMA.—*Amite:* There has been an average decrease of about 10 per cent. in the value of all stock except sheep. They now sell for as much per head as last January, and I think there is an advance in the price.

LOUISIANA.—*Jackson:* Average value of horses and mules, $40 per head; oxen and other cattle, $5; milch-cows, $10; sheep, $1; hogs, $1.

TEXAS.—*Smith:* Hogs are seldom slaughtered under eighteen months old, and usually at two years old and upward. Hog-stealing is now a penitentiary offense, and more attention is paid to raising hogs and improvement of breeds. *Burnet:* Hogs over one year old very scarce. *Goliad:* The greatest change in stock-raising results from the increasing disposition of the farmer to combine with that branch other agricultural industries. *Titus:* Mule-raising is on the increase, and they will soon take the place of horses on the farm. Beef-cattle killed up very close, owing to a great scarcity of bacon, caused by cholera among hogs. Hogs healthy now, and a good increase the past fall; nearly a supply for the county. Pork 10 cents per pound. *Williamson:* By a late law hogs are not allowed to run at large; consequently the number is less. *Bell:* Neat-cattle have been driven to western and California markets until the number is getting down below home necessities. The county is gradually introducing short-horned cattle and Berkshire hogs. *Bastrop:* Most of the beef-cattle and oxen have been driven from the county to the northwestern States. While the percentage of hogs has fallen off better hogs are being grown—Poland, China, Berkshire, and Essex. *Lampasas:* The number of horses has increased in consequence of increased immigration into the county in 1875. *Lamar:* The increase in horses and mules is owing more to immigration than any other cause. *Grayson:* We maintain our percentage in horses and mules more by immigration than by raising them. *Collin:* The decrease in cattle is due to the fact that some large cattle-raisers have moved their herds farther west for better range. *Dallas:* What stock is kept on the farms is of better quality than that formerly raised, and there seems to be a general disposition among the farmers to improve their stock. *Cooke:* Reference to the tax-rolls shows the number of horses to be 8,406; average price, $35. Cattle, including milch-cows, 41,175; average price, $7. Sheep, 2,353; average price, $1.50. The estimated number of hogs 3,300, and the value $3 per head. *Hunt:* The native stock of horses is decreasing, and better breeds are

taking the place. The same is true of mules, stock-hogs, milch-cows, and other cattle. *Austin:* Sheep-raising is spreading again where the range is still sufficient. *Upshur:* Owing to the driving of cattle west from this portion of the State, they are getting scarce. *Wood:* Hogs are on the decrease, owing to the short corn-crop for the last two years and no mast. *Fort Bend:* Milch-cows receive but little attention. A citizen may own 5,000 and not milk one during the year. *Nueces:* Horses are increasing very rapidly. Cattle are daily decreasing in numbers; they are being driven off to Mexico by armed bands, who live by plundering. Sheep are increasing rapidly, and are paying from 30 to 50 per cent. on the investment.

ARKANSAS.—*Dallas:* The horses raised are very inferior. About as many horses and mules are bought from drovers as are raised. *Izard:* The great scarcity of fattening-hogs has caused many to be killed which were too young, and otherwise would have gone over to the next season. *Crawford:* There are in the county at this time 5,384 sheep; some 2,000 have lately been driven to Kansas for better pasturage and protection. *Independence:* Farmers who keep brood-mares find it more profitable to raise mules than horses. *Fulton:* Some are awaking to the importance of better stock than our long-continued "scrub," and are procuring improved stock of cattle, hogs, and sheep. *Howard:* A new impetus has been given to hog-raising in this and the adjoining counties. A fair crop of mast has caused the country to abound in pigs. I think 200 is not an over-statement of the percentage. *Prairie:* Sheep-raising is rapidly increasing.

TENNESSEE.—*Smith:* Sheep are higher than last year, because the quality is greatly improved. No hogs a year old, except breeding-sows; all others have been slaughtered. Nearly all on hand are sucking-pigs and many are depending on pigs yet to come for next season. *Grainger:* Our market for horses and mules is in the cotton States, where they have ruled very low. Cattle and sheep have sold better than last year, and consequently fewer are on hand. Hogs have sold at $6 to $6.50 gross. *Bedford:* Hogs were better fattened than usual, and consequently stock for another year is very scarce. *Coffee:* Hogs have been disposed of at 6½ cents gross, at the railroad station. *Rutherford:* Owing to the failure in the cotton-crop, farmers are disposing of all their surplus stock. During the last six weeks an average of three car-loads of mules per week has been shipped from this point, and droves are still shipped. *Lincoln:* The very short corn-crop in 1874 lessened the number of hogs; efforts now to increase them. Prices of horses and mules lower than for years. Imported breeds of cattle much higher than the figures given for the average. *Loudon:* Except sows, all the hogs here over one year old have been put into market. Average price, 6½ cents per pound, live weight, and average weight 260 pounds. *Monroe:* Fine stock is being introduced into the county very fast, such as short-horn and Jersey cattle, Cotswold and Southdown sheep, Berkshire and Essex hogs, and trotting horses. *Davidson:* The crop failures of 1874 caused unusual waste of cattle by the butchering, starvation, and sales at serious loss. Hog-cholera, added to the above cause, brought hogs down in number at least 50 per cent., and perhaps more. Sheep have increased under an excellent dog-law, and will continue to advance in character and number if that law remains in force. *Gibson:* Hogs reduced, last winter, by starvation and disease, were in almost universal demand the present season; a sow and pigs commanded almost fabulous prices. The Berkshire are preferred to any other stock.

WEST VIRGINIA.—*Jefferson:* Sheep are increasing very rapidly.

KENTUCKY.—*Madison:* A decrease in the mules raised, owing to a heavy decline in the price for the two previous years. The raising of horses has been stimulated and increased by the opposite reason. *Fleming:* The decrease of hogs is caused by the loss of pigs by disease, known as cholera, and by the high price, forcing into the market all large enough to kill.

OHIO.—*Clark:* Raising more fine horses than formerly; some worth $500 to $1,000; cattle dull; hogs high; 7½ cents per pound gross. *Coshocton:* But few horses have been sold for the eastern market, owing to the low price; fully 5 per cent. of the matured horses are now for sale. Hogs of the same age and breed average fully 10 per cent. less in weight than last year. *Lucas:* Some good blooded horses were brought into the county within two or three years, increasing the raising of colts of a higher grade. *Monroe:* Fat hogs selling at 5½ to 6 cents live weight. *Licking:* Hogs very high. Stock-hogs, that is, under one year old, sell as high as 8 cents. *Washington:* Cows are from $30 to $60. *Tuscarawas:* All kinds of stock have fallen off in numbers for several years, owing to short hay-crops and long feeding-winters for the last three years, and to increasing shipping facilities which induce stock-men to cull out more closely. *Williams:* The price of horses is lower than for sixteen or twenty years; so low that farmers do not think it pays to raise colts. Hogs are scarce, owing to the fact that money is scarce, and they bring a pretty good price. Moreover, farmers are now beginning to see that it does not pay to keep a hog over winter, so that few are now kept, except for breeding purposes. *Preble:* Horses are 40 per cent. lower than they were eight months ago. A great many cattle were sold off after harvest for fear they could not be wintered. This has caused a deficiency. *Perry:* The reduction of cattle is owing to the fact that the scarcity of feed last winter caused every one to dispose of all he could. *Marion:* Very

few hogs remain over; some for breeding purposes. The breed has been greatly improved. No difficulty in making spring-pigs weigh 200 to 300 pounds by November, and those weights bring the best prices. *Delaware:* The large number of hogs coming on will make cheap pork within the next twelve months.

MICHIGAN.—*Hillsdale:* The price of fat cattle in the market is $3 to $4 per hundred; fat hogs, on foot, $6; dressed, $7.50. *Calhoun:* Sheep have been sold less than usual; many of our farmers finding them indispensable and profitable for their farms. *Mecosta:* As the county develops, all kinds of farm-animals are increasing.

INDIANA.—*Clay:* Sheep-husbandry declines, owing to destruction by dogs; mule-raising declines for want of a certain and remunerative market. *Wabash:* The high price for hogs has used up the stock very clean, except a few for breeders. *Stark:* Oxen and other cattle have not been sold out so close for ten years. *Warren:* Hogs have brought $6 to $8 per hundred. *Ohio:* As corn is cheap and pork high, everything that will make pork is being fattened. *Hamilton:* Hogs very scarce owing to deaths by cholera. *Washington:* About all the hogs over six months old have been fattened and sold at $6 to $7.15 per hundred gross.

ILLINOIS.—*Winnebago:* A large proportion of the calves sold to butchers. *Mercer:* The decrease in mules is owing to the fact that the epizooty took most of the jacks out of the county. *Piatt:* Not many cattle over three years old in the county, except milch-cows. *Iroquois:* The number of hogs fattened will fall short of an average 30 per cent., but the quality will raise the quantity. *De Kalb:* A falling off in the price of cows, owing to a decline in dairy products, especially cheese. *Ford:* The increase in the number of horses is owing to immigration. *Carroll:* All kinds of stock are declining in numbers, except horses and milch-cows. The number of horses is kept up because there has been no demand from abroad, and of cows, because the farmers are turning attention to the manufacture of cheese on the co-operative plan. *White:* The decrease in farm-stock is owing to scarcity of feed. Hogs have been shipped to the greatest extent. *Boone:* Scarcely any hogs over one year old, and very few cattle over two and a half or three years.

WISCONSIN.—*Clark:* The increase in stock of all kinds is owing to the fact that the county is new and rapidly developing. *Crawford:* Hogs and sheep are the only kinds of stock which have paid expenses, sheep paying best; dressed hogs $7.50. *Green Lake:* The quality of all kinds of farm-stock is gradually improving. Sheep are the favorite stock, and the finer grades are most numerous, being kept mostly for wool. *Columbia:* Great numbers of young hogs shipped, owing to the short corn-crop. *Green:* Nearly all the hogs not sent to market are under one year old, and some of them will be marketed between this and spring. There is a steady increase in the number of cows, the dairy business growing constantly.

MINNESOTA.—*Waseca:* We are beginning to raise cattle and hogs, instead of so much grain. Cheese-factories are springing up; hence the increase in cows. *Faribault:* Farmers have learned by sad experience that persistent efforts to make a living by wheat-culture alone only renders them poorer and poorer every year, and, therefore, are paying more attention to the raising of stock and hogs than ever before.

IOWA—*Sioux:* The prices of horses, mules, cattle, and hogs are much higher in our newly-settled county than in the regular market. *Polk:* While fewer mules have been raised, a larger proportion has been shipped South and to Colorado. Both fat and stock-hogs sell readily at 6 to 6½ cents per pound. *Howard:* Hogs bring a good price and are selling off rapidly; lowering the percentage of stock hogs, and raising the price of young pigs. *Scott:* Most of the fat hogs sold are from fifteen to twenty-two months old. *Linn:* The hog crop is 10 per cent. short. *Cherokee:* The price of pork has created quite a demand for stock-hogs.

MISSOURI.—*Jasper:* Native breeds of cattle are being greatly improved by the introduction of full-bloods. *Howard:* Almost impossible to purchase hogs of any age. Never knew the difference to be so great between the prices of corn and of hogs; corn 20 cents per bushel, and stock-hogs 5 to 6 cents per pound. The hogs fattened next year will be spring pigs. *Jefferson:* Milch-cows scarce; average price, with calf, $30. Mules are superseding horses here. *Marion:* Stock-hogs rate at about 5 cents, fat hogs at 6. *Carroll:* The increase in the total number, and the large percentage of oxen and other cattle, is owing to the great number brought into the county to feed. *Reynolds:* Cattle, young horses, sheep, and hogs are reduced very much, owing to scarcity of feed and severe weather last winter. *Polk:* Hogs sell at 6½ cents, live weight. *Platte:* Hogs selling at 6½ cents, gross. Pork-packing in the county not yet over; 1,500 to 2,000 fat hogs still on hand. *Perry:* The reduction in cattle and hogs is owing to the scarcity of feed last winter. *Dent:* A great many cattle have been shipped out of the county. *Dallas:* Large hogs were thinned out last winter by cold and starvation, and the number is not yet made up. The increase in milch-cows results from more and better feed than last year. *Caldwell:* Fat hogs and breeding sows are much higher in price than usual. Many cattle are being fattened. *Barton:* Last year we sold all our hogs off, owing to a failure in the corn-crop; now we have to pay $10 per head for pigs. *Holt:* About 3 per cent. of the hogs have died from disease. Every case is

called cholera, but this is doubtful, as some cough, then fail in appetite, and die in a few days.

KANSAS.—*Dickinson:* A marked increase of horses, and especially of mules, within the last three months. *Wabaunsee:* The percentage of pigs and the price of hogs are very high, owing to the fact that at the 1st of January, 1875, most of the hogs had been disposed of on account of the grasshopper-famine. *Nemaha:* The percentage of oxen and other cattle is large, on account of many fattening cattle this winter against very few last. *Mitchell:* Sheep are in great demand. *Franklin:* The low percentage of hogs is owing to the destruction of the corn-crop in 1874. Those that could not be sold were given away to any one who could keep a pig. There is a growing disposition to keep sheep; the chief difficulty in the way is the distance to travel in order to buy, as they cannot be purchased near at hand. *Leavenworth:* Hogs one year ago were nearly all sold to Iowa and Illinois; so we have only what we have raised since. *Montgomery:* The large percentage of calves is owing to the fact that heretofore little attention has been paid to stock for feeding. *Osage:* At least 50 per cent. of the cows had no calves the past season. The county is almost without any hogs; they sell readily at 10 cents per pound, gross. *Lyon:* Owing to previous failures in the corn-crop, hogs had been nearly all sold out of the county; owing to the abundance of the last crop, many have been shipped in. *Butler:* Having but little corn last year, we wintered but few hogs, but a great many pigs were raised last summer. *Anderson:* Stock is improving in quality; thorough-bred and grades are taking the place of Indian or Texas stock. Our stock of hogs is of fine quality, mostly pigs. With our last good corn-crop we will increase the number of our hogs very rapidly.

NEBRASKA.—*Seward:* Sheep in good demand, but none to sell. Profits on investment 75 per cent. *Webster:* Last year, owing to scarcity of feed, the greater part of the hogs and great number of cattle were killed, but the crop prospects having brightened this year the farmers greatly increased their stock of farm animals. This accounts for the high percentage. *Wayne:* Cattle and horses are increasing, and the attention of farmers seems to be turning to these branches of agriculture. The falling off in the number of hogs is owing to grasshopper depredations. *Thayer:* Hogs are very scarce and high, owing to the failure of last year's corn-crop. *Knox:* Some blooded cattle and hogs were brought into the county last month. *Antelope:* Hogs, killed off very close last year, are now accumulating very fast. Horses, mules, cattle, and sheep are on the increase. Investment in farm-stock is coming to be considered much better than in grain-raising. *York:* We have not entirely recovered from the reduction of our hog crop by the grasshopper scourge of 1874. The county is well adapted to sheep, but they are not here. *Saunders:* The failure of the corn-crop in 1874 accounts for the decrease in cattle and hogs. The decrease in sheep is due to the dogs and butchers.

CALIFORNIA.—*Sonoma:* The increase in the numbers of cows and hogs is owing to the fact that farmers are turning their attention to the dairy business. *Lake:* Hogs over one year old mostly sold off. *Placer:* Sheep-raising is becoming one of our leading industries. *Del Norte:* Large working-oxen are only used in logging, and are worth $150 per yoke at the camps. *Plumas:* A continual increase in dairy farming for the last three years. *Mendocino:* This country, for several years, has been inclining toward sheep husbandry, and other stock has been gradually giving way. There is a gradual introduction of a better stock of horses; but few of the full-blooded Spanish mustangs are now left. *San Bernardino:* A great many sheep have gone from the county to Arizona, and 20 per cent. have died of starvation. The decrease in other stock is owing to the "no fence law."

YIELD OF FARM-CROPS IN 1875.

CORN.—The increase in quantity of corn reported in November is corroborated by the reports of yield per acre. The following table shows the comparative yield per acre of the largest corn-producing States for the past four years:

States.	1872.	1873.	1874.	1875.
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*
Tennessee	23. 5	22. 5	16. 8	30. 5
Kentucky	31. 2	29. 5	25	33. 3
Ohio	39. 5	35	36	33. 2
Indiana	38. 7	25. 6	27	34. 5
Illinois	39. 8	21	18	34. 5
Iowa	39. 8	29	29. 2	35
Missouri	37	23. 5	16	36. 6
Kansas	38. 5	39. 1	10. 5	38. 4

All of the New England and Middle States report increased yields, except Connecticut; New Jersey, and Pennsylvania, report a very marked increase. All the Atlantic coast States south of Virginia, including Florida, show a decreased average, as also do Ohio, Wisconsin, Minnesota, and Oregon; all other States increase their yields. Complaints of soft corn are of wide currency in the Northern States, while injuries to farm-animals are noted at several points in the South from eating musty corn.

WHEAT.—The wheat-crop of 1875 was considerably below its predecessor, notwithstanding its increase in acreage. The estimated yields per acre of the leading wheat-producing States, given below, will indicate the comparative range of this crop in the past four years:

States.	1872.	1873.	1874.	1875.	States.	1872.	1873.	1874.	1875.
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*		*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
New York	12.5	13.5	15.6	8	Wisconsin	14.3	16.5	11.5	14
Pennsylvania	10.8	14.2	14.8	12.8	Minnesota	16.5	18.3	13.4	17
Ohio	11.7	12	15	9.5	Iowa	12.6	13	11.6	9.7
Michigan	12	12.2	14.2	13.5	Missouri	8.8	12.8	13.5	9
Indiana	12.4	11.2	12.2	9	Kansas	11.6	14	13.7	12.5
Illinois	12.1	13.5	11.5	10.5	California	12.2	13.5	13.2	11

Of these States only Wisconsin and Minnesota report an excess over 1874, which will be more than counterbalanced by the reduction in the other States. The crop shows a depreciation in quality as well as a decrease in quantity, and this depreciation is most serious in the great wheat-growing regions.

OTHER GRAINS.—Rye will present an increased general yield, as the average yields have been increased in most of the large rye-producing States. The oats-crop has increased its yield per acre in all the States except Maine, New Hampshire, Massachusetts, Rhode Island, California, and Oregon. The following figures illustrate the comparative yields in the leading oats-producing States for four years:

States.	1872.	1873.	1874.	1875.	States.	1872.	1873.	1874.	1875.
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*		*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
New York	35	31	32.8	34	Indiana	30.5	20	19	29
Pennsylvania	31.2	30.2	24.6	30	Illinois	36.6	30	17.5	33.3
Virginia	13	16.3	11.5	15	Wisconsin	35.5	35	26.2	38.5
Kentucky	24.6	24	14.4	21	Minnesota	36.5	36.1	30	36.5
Ohio	30	27	20.5	27.2	Iowa	36.7	33	30	37.7
Michigan	30	30.2	27	35	Missouri	32.7	28	22	31.6

As these States represent about six-sevenths of the oats product of the Union, their uniform and, in some cases, very large increase of yield per acre point to an immense product in 1875. Illinois, which produced one-seventh of the crop reported in the last census, shows the largest increase of yield—15.8 bushels per acre. Barley shows a general increase of yield in the Northwestern States, but a decline in the Middle and Southern States. Buckwheat shows an increased yield in most of the States.

POTATOES.—The New England States, New York, and New Jersey report yields exceeding 100 bushels per acre, Massachusetts reaching 160. Of the other Middle States, the South Atlantic and Gulf States all are below 100 bushels per acre, except Florida, 110, and Texas, 100.

All the other States report yields above that figure, except Arkansas, 70, and Kentucky, 98. Nebraska presents the maximum average—175. The comparative yields of the leading potato-producing States for four years were estimated as follows:

States.	1872.	1873.	1874.	1875.	States.	1872.	1873.	1874.	1875.
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*		*Bushels.*	*Bushels.*	*Bushels.*	*Bushels.*
Maine	75	117	123	107	Michigan	66	75	87	125
New Hampshire	94	150	120	133	Indiana	70	56	60	114
Vermont	107	140	145	155	Illinois	75	40	55	130
New York	88	103	105	128	Wisconsin	97	71	87	105
New Jersey	75	90	70	105	Iowa	120	44	63	121
Pennsylvania	99	96	84	96	Missouri	80	38	40	110
Ohio	80	85	71	103					

The increased averages are due to better conditions of growth and to the gradual disappearance of the Colorado beetle. The above States grow about six-sevenths of the potatoes of the country.

A special report will hereafter present the tobacco-crop.

The hay-crop shows a general decline in the New England and Middle States, with an equally general increase in the Southern and Western States The comparative product of the last four years may be gathered from the following figures:

States.	1872.	1873.	1874.	1875.	States.	1872.	1873.	1874.	1875.
Maine	.92	.93	.88	.95	Michigan	1.25	1.15	1.00	1.20
Vermont	1.16	1.10	1.14	1.13	Indiana	1.24	1.25	1.13	1.30
New York	1.25	1.02	1.30	1.17	Illinois	1.45	1.25	1.20	1.40
Pennsylvania	1.12	1.15	1.16	1.10	Wisconsin	1.26	1.30	1.10	1.35
Ohio	1.07	1.05	.90	1.10	Iowa	1.35	1.25	1.22	1.35

The States in the above table produced about two-thirds of the crop reported in the last census-tables.

SORGHUM.—This crop, cultivated almost entirely for the manufacture of molasses, shows an increasing product in several of the States cultivating it.

The average yields of the crops will be found detailed in the general tables of this report.

PRICES OF FARM-CROPS.

CORN.—Our December returns present a fresh illustration of the dependence of the price of corn upon the home demand. At no time within the last twelve years has our foreign export equaled 4 per cent. of the crop, while it has ranged below 1 per cent. It will not bear transportation abroad to an extent sufficient to affect our home markets. The increased yield of 1875 has had its natural effect in depressing prices, both on the farm and in the market. A decline is noted in all the States except South Carolina, where it averages the same as last year, and Florida, Texas, and California, in which the price has increased. In Texas, though there has been an increase in yield, the influx of immigration has created a temporary home market for the surplus. In the other three States the yield has declined, and has in consequence enhanced the local demand. In all the other States the farmer gets less for his product, partly on account of the abundant yield and

partly on account of the continued stringency in the money market. The greatest decline is found in the trans-Mississippi regions. Iowa falls from 43 cents per bushel to 27; Missouri from 74 to 28; Kansas from 91 to 23; Nebraska from 73 to 20. This is easily explained by the destruction of the crop of 1874 by grasshoppers in this region and by the abundant crops of 1875. In New England it is noticeable that the decline is least near the commercial centers and greatest in the agricultural districts. Rhode Island, almost overshadowed by its industrial metropolis, Providence, falls off but 8 cents per bushel from last year; Massachusetts, with a greater proportion of farming-land, declines 15 cents; while in Maine, more exclusively agricultural, the fall amounts to 27 cents. This is observable to a small extent in the Middle States, but in the South Atlantic States the case is reversed. Maryland, with its small area around Baltimore, falls off 18 cents, while Georgia declines but 6 cents, and South Carolina holds her own. In the Gulf States, Mississippi, which has made the greatest increase of yield, exhibits the greatest decline, 18 cents. In Arkansas there is a great decline, 45 cents, as also in Tennessee, 27 cents. Kentucky falls off 14 cents, while West Virginia loses only 5. North of the Ohio River the fall is greatest in the southern sections, the average decline in Michigan being but 4 cents, while in Illinois it was 22 cents. On the Pacific coast, Oregon has fallen off 3 cents, while California has gained 9 cents.

The comparative prices of corn on the farm, on the 1st of December, for the last four years, in the leading corn States were as follows:

States.	1872.	1873.	1874.	1875.	States.	1872.	1873.	1874.	1875.
Pennsylvania	$0 60	$0 60	$0 76	$0 58	Ohio	$0 34	$0 42	$0 58	$0 44
North Carolina	62	64	72	60	Indiana	29	40	51	39
Texas	43	80	75	53	Illinois	24	32	56	34
Tennessee	48	58	68	41	Iowa	18	31	43	27
Kentucky	37	44	55	41	Missouri	32	38	74	28

WHEAT.—The South Atlantic and Gulf States, from North Carolina to Texas, with Arkansas and Tennessee, report lower prices for wheat on the farm, while all the other States indicate an increase. In the South this crop is grown only for home consumption, and during the past few years its acreage has considerably increased, and its product bears a larger proportion to local demand. In other parts of the country, where this crop is raised for general market, the problem of prices has been affected by influences of broader scope. The prices of 1874 were greatly reduced from the preceding year by the large crops of Europe, which limited the demand for American wheat; but the yields in Europe during 1875 were not so great, and our own crop was shortened by various disasters in different parts of the country. The result of these varied influences has been a general increase of price for wheat on the farm. In New England the increase ranged from 8 cents per bushel in Massachusetts to 12 in Vermont and Connecticut; in the Middle States, from 5 cents in New York to 9 cents in Delaware; Maryland increased 5 cents, and Virginia 4. West of the Alleghanies, West Virginia shows the greatest increase of all the States—38 cents. Kentucky and the States north of the Ohio River range from 3 cents in Indiana to 8 cents in Wisconsin; west of the Mississippi the increase varies from 3 cents in Kansas to 16 cents in Minnesota; on the Pacific coast the average price has advanced 19 cents in California and Oregon.

The variations of the last few years may be seen from the following

figures showing the prices of wheat in the leading wheat-producing States on the 1st of December:

States.	1872.	1873.	1874.	1875.	States.	1872.	1873.	1874.	1875.
New York	$1 65	$1 60	$1 26	$1 31	Wisconsin	$1 03	$0 97	$0 83	$0 91
Pennsylvania	1 67	1 50	1 21	1 29	Minnesota	83	80	70	86
Ohio	1 42	1 31	1 04	1 09	Iowa	85	79	65	71
Michigan	1 46	1 35	1 08	1 15	Missouri	1 41	1 13	83	95
Indiana	1 32	1 22	94	97	California	1 11	1 32	99	1 18
Illinois	1 23	1 10	86	91					

COTTON REPORT FOR DECEMBER.

The returns of the growing season, from June to October, or from the time when the stand is well established to the close of the first picking, comprise all the systematic reports of condition. The November returns are estimates of the outcome of the crop in direct comparison with the previous one. They are made during the harvesting of the "middle crop," usually just prior to the coming of killing-frosts in the lower latitudes, when the "top crop" is still subject to all the vicissitudes of the later season. In order to the fullest possible understanding of the crop situation, it is therefore necessary to know the character of this closing period, as to heat and sunshine, rains and wind, disturbance of harvest-labor, and yield of lint in proportion to weight of seed-cotton. Especially in relation to the latter item there were hints in November of unusually low rates of yield, which led to systematic effort to learn the whole truth in the matter; and the following questions were asked of each county correspondent:

How many pounds of lint will 100 pounds of seed-cotton make this year?
How many pounds to the hundred last year?

The estimates, which were usually made by averaging carefully the results of work of gins in different portions of the county, have been tabulated, producing the following State averages:

	Lint in 100 pounds seed-cotton.		Per cent. in '75 compared with '74.
	1875.	1874.	
North Carolina	29	32.2	90
South Carolina	29.2	33	88
Georgia	30	32	94
Florida	27.5	28	98
Alabama	31.4	31.8	99
Mississippi	30	32.2	93
Louisiana	30.5	30.7	99
Texas	31	30.6	101
Arkansas	31.7	31.3	101
Tennessee	28.7	30.2	95

No one of the Atlantic States appears to exceed 30 pounds to each 100 of seed-cotton this year, and the average of all is very nearly 30. Last year this belt of States surpassed in figures of condition every State of the Mississippi Valley. It is shown that the rate of yield of lint to seed corresponds closely with the total quantity produced in each State of these two sections. Texas, Arkansas and Alabama make the highest averages in 1875: in 1874, South Carolina, North Carolina,

Georgia and Alabama took precedence. One pound to three, the old rule for estimating lint, appears to be substantially correct in a year of good yield; 32 pounds in 100 may be considered nearer an average figure for the best lands, and anything under 30 a poor average return. Last year did not quite reach this average on account of the poor crop in the Mississippi Valley, and the present year presents a return of 96 per cent., as compared with last year.

As an illustration of the range of county estimates, and to afford an opportunity to judge of the reliability of the State estimates, the tabulation of yield of lint of a single State, Georgia, is given:

Counties.	Lint to seed-cotton.			Counties.	Lint to seed-cotton.		
	1875. Pounds.	1874. Pounds.	Percentage '75 to '74.		1875. Pounds.	1874. Pounds.	Percentage '75 to '74.
Hart	29¼	31	95	Floyd	30	33	91
Gwinnett	33⅜	33⅜	100	Fulton	32	33½	95
Oglethorp	28	33	85	Glynn	20	20	100
Hancock	28	33⅜	84	Twiggs	30	33	91
Douglas	33	32	103	Muscogee	31½	31½	100
Gordon	31	33	94	Talbot	30	30	100
Milton	30	33⅓	90	Chattooga	30	33⅜	90
Jackson	33⅜	33⅜	100	Harris	33⅜	33⅜	100
Walton	33	33	100	Cobb	30	31½	90
Hall	33⅓	30	111	Montgomery	33⅓	30	111
Cliuch	30	25	120	McDuffie	30	33	91
Cherokee	30	33⅓	90	Terrell	30	33⅓	90
Upson	27	34	79	Coweta	31	31	100
Early	30	33	91	Macon	28	30	93
Clay	29	30	96	Catoosa	33⅓	35	95
Laurens	30	33	91	Carroll	30	33⅓	95
De Kalb	30	33	91	Madison	31	30	103
Liberty	30	33	91	Murray	33⅓	35	95
Dougherty	29	33	88	Mitchell	30	33	91
Telfair	29	33⅓	87	Columbia	25	31½	79
Dodge	30	33	91	Forsyth	30	32½	92
Marion	33⅜	33⅓	100	Decatur	25	33⅜	75
Wilcox	29	30	96	Lincoln	27	30	90
Thomas	27	33⅜	81	Elbert	30	33	91
Walker	28	33⅓	84	Lumpkin	33⅓	30	111
Schley	30	32	94	Dooly	28	25	112
Sumter	30	33⅓	90	Johnson	31½	31½	100
Worth	25	32½	77	Stewart	30	31½	95
Taliaferro	33⅜	28½	117	Dawson	30	32	94
Troup	33⅜	32	104	Colquitt	28½	31	92
Whitfield	30	33	91	Pickens	30	33	
Jefferson	32½	33⅓	97				
Warren	30	33	91	Average	30	32	94

While a decrease in proportion of lint is the rule in the Atlantic Coast States, there are exceptions, as the Georgia returns show. In North Carolina three counties, Chatham, Guilford, and Rutherford, return the same as last year, and one, Alexander, gives a greater yield; the season having been unusually favorable, and the lint better in quantity and quality. In South Carolina the yield of lint was better in Richland, and as good as in 1874 in Edgefield. Putnam and Gadsden, in Florida, on account of a dry and favorable season, report the yield as good as in 1874.

In Alabama the yield was equal to or better than that of the previous

year in one-third of the counties. Fully five-sixths of the counties of Mississippi return a smaller yield. Nearly one-half of the returns from Louisiana indicate a proportion of lint equal to that of 1874; and in Arkansas and Texas returns of like character slightly predominate. A reduced yield is indicated in Tennessee in more than half the counties. It may seem unaccountable that there should be local results so opposite in the same latitudes and vicinity, but the facts are equally diverse with reference to moisture, sunshine, length and fineness of fiber, and quantity of crop. An examination of extracts from remarks of correspondents, which conclude this report, will afford much light upon these local differences.

The reduction of lint in proportion to seed is attributed to various causes. Anything preventing the development of the boll will reduce the relative amount of lint, which is last in order of maturation. Too much moisture after drought may give a sudden impulse to the growth of wood, and perhaps size and numbers in fruiting, but the bolls are slow to open and deficient in lint. Drought may so injure the plant as to prevent proper development of boll. The use of fertilizers, especially the phosphates, tends to increase the weight of seed, as in the case of our cereals, and our returns give proof of such result; in one county unfertilized fields yielding five pounds of lint more per hundred, or 17 per cent.

Quality.—In nearly three-fourths of the counties of the Carolinas the quality is represented as inferior to that of 1874. A few reports make the staple shorter, with quality equal in other respects; one indicates shortness of fiber, with less yellow cotton.

Georgia has the same proportion of reports of low quality. The counties in which the staple is better are Hart, Early, Liberty, Telfair, Dodge, Taliaferro, (decidedly better,) Montgomery, Madison, and Lumpkin. Other reports indicate an equality with the previous crop. Similar statements come from Florida, some much worse, a few better, and some the same as in 1874.

Coming to Alabama, just half the reports indicate worse quality, some making the depreciation as much as 20 per cent.; and of the remainder rather more than one-half return better quality, a few of them "much better," or "decidedly better." Mississippi, which reports as low a yield of lint as Georgia, also returns as much depreciation in quality. Nearly all of those returning better quality are upland counties. Injury by storms is reported in some cases.

A larger proportion of returns of good or superior quality come from Louisiana, yet they are less than half of the entire number. Very nearly half from Tennessee indicate good or better quality, but the average indications point to a slight reduction in the quality of the whole crop.

The only States in which the quality of lint is improved are Arkansas and Texas. In the former three-fourths of the returns indicate superiority, and in the latter fully four-fifths. In some counties in Texas the average quality is a full grade higher than in 1874, and the degree of improvement ranges in other counties from 5 to 50 per cent. The staple is very generally reported longer and finer.

Progress of gathering.—Another point upon which careful estimate was required was the proportion of the crop gathered on the 1st of December. The progress of gathering was returned as farthest advanced in South Carolina and the latest in Mississippi. The percentage gathered is returned as follows: North Carolina, 89; South Carolina, 95; Florida, 93; Georgia, 92; Alabama, 87; Mississippi, 75; Louisiana, 83; Texas, 94; Arkansas, 76; Tennessee, 78. The average for the crop

is 90 per cent., leaving one-tenth of the crop ungathered on the 1st of December.

Weather.—The meteorological conditions have been somewhat unusual, and their effect somewhat difficult to calculate. The growing season has been of almost unexampled length, and yet the weather has not been quite in a medium degree favorable for gathering, and scarcely for maturing. Many reports in all the States represent highly favorable conditions of maturation and harvesting, but a still larger number in every considerable section are unfavorable. Not a few in all the lower belt of States report an absence of killing frosts up to the date of return, and several report the first destructive frost on the 7th or 8th of December; and yet so late a season, instead of increasing the crop, is held at many points to be the cause of diminished yield. This apparently anomalous result is not unreasonable the present season in those large districts of best production, in which the growth of wood was late and too vigorous, and moist and growing weather continued long after the usual time for the decay of the stalk and maturing of the top-crop. Even in December blossoms and young bolls were present, and ripening was delayed until heavy frosts appeared, followed by blasting storms, which not only prevented maturation, but destroyed much of the open fiber.

Rains have been too frequent and rough storms have occurred to a greater extent than last year, tending to diminish the expected product and delay the work of the pickers.

The effect of a long season, increasing the yield on uplands and advanced growths generally, with the drawback of a lack of frost to stop growth and hasten ripening; and, *per contra*, the injurious results of storms and unfavorable weather, may together, if carefully analyzed, be held to indicate a somewhat less favorable autumn than that of 1874.

Total quantity produced.—It is always difficult to combine the records of the most accurate crop-history, taking into due consideration the germination, the stand secured, the cleanness of weeding, temperature, drought, storms, floods, worms, frosts, efficiency of labor, and other causes of success or failure; yet upon a careful analysis of all these influences depends our knowledge of the crop prior to its actual presence at the cotton-marts of the country. The Department returns made an increase of about 2 per cent. in the area of the present crop. The record of condition for five months, from June to October, furnishes another important element in the calculation. It would not do in every season to rely upon an average of condition for the season, especially if there was a continual upward progress in the record of one season, and a downward movement in the other, with which comparison is made; but the past two seasons have a substantial agreement in that respect, and the averages of each ought to bear some relation to crop-prospects in October.

We find the average of this period in 1874 to be 83 per cent. of a standard of unimpaired vitality; in 1875, 93.5 per cent. As the crop of 1874, with fine autumn weather and late frosts, was 3,833,000 bales, the expectation in October on this basis would be 4,317,000 on an equal area, and 4,403,000 on the actual area. Then it is found that the yield of lint is 4 pounds less than last year on every 100 pounds of seed-cotton, which causes a reduction of 176,000 bales, leaving the prospect 4,227,000 bales. But it would appear that the present season has been less favorable than last year for perfecting and opening the bolls, and for gathering; and yet the delay of killing frosts has been remarkable, tending in some situations to increase of yield, and in others to continued growth of the whole plant rather than the perfecting of its fruit, thus complicating the

comparisons of ultimate results. In some cases the greenness of the plant in December is cited as a cause of diminished yield by the sudden loss of long-delayed fruitage by violent storms. These facts make it difficult to estimate the extent of the depreciation from unfavorable weather. Three per cent. ought not to be unreasonable, and this would leave 4,100,000 bales; if four per cent., 4,058,000 bales; if only two, 4,143,000.

The November returns, as before stated, giving an aggregate of local estimates, are each year somewhat lower than the teachings of the returns of condition. They are about twelve per cent. greater in 1874 than in 1875, and if we reduce this increase one-half in view of the difference in the weather, and the yield of lint not taken into consideration on the first of November, and add 6 per cent. to the crop of last year, we have 4,063,000 bales. This is in harmony with the result deduced from the returns of condition above.

It is our aim to give as accurately as possible the history of the crop, and not to make bets on the actual result, or attempt to fix to a bale the amount to be ginned and sold, as a small portion of the crop is still liable to various contingencies before marketing. But it is proper to give an idea of the substantial purport and meaning of our returns; and we have no hesitation in interpreting them to mean a crop of about 4,100,000 bales, with small probability that it will either exceed or fall short of that amount more than fifty thousand bales. If it should vary by wider figures, we must acknowledge that by so much have our returns failed to fathom the inscrutable.

We make somewhat copious extracts from the notes accompanying December returns, to give all the light possible upon the later aspects of the crop:

NORTH CAROLINA.—*Pitt:* While the acreage this year was 100, the "final estimate of the quantity to be expected will not exceed 66⅔." *Wilson:* Owing to a small increase in acreage the crop is about 2 per cent. larger than last year; yet the yield is not so good, the staple being a little inferior. Ten thousand bales is the estimate for this year's crop in this county. *Edgecombe:* All lint made since the August rains is, as a rule, inferior. *Brunswick:* On account of late spring and very early fall, also of the very dry months of July, August, and September, there are now a great many half-matured, open bolls on the stalks. *Beaufort:* The season has been very wet, particularly during November. The last picking has fallen very much short of what was anticipated. Those who secured an early stand have made fair crops, but those who were late—and their number is unusually large—have made only two-thirds of a fair or average crop. I am now of opinion that the acreage was a little larger than first reported, and that the crop of this year will be only about 8 per cent. short of that of 1874. *Hertford:* The lint is shorter than last year's; its quality is considered not so good. *Duplin:* Cotton on stiff lands has made an average crop; on sandy lands, scarcely half a crop. One-half the lands planted in cotton are fine sand-lands. Nearly all cotton has been sold, and over one-half the farmers still in debt for making it. *Monroe:* The cotton-crop is at least one-third short of last year, and the yield on an average is 1 pound of lint to 3¼ pounds of seed-cotton. *Union:* The heavy frost has decreased the average in this county at least 15 per cent. *Mecklenburgh:* The frost has injured our crop about 10 per cent. This year's crop is about three-fourths of that of 1874. Over one-half of the crop in this county has been sold. *Nash:* The droughts of June and July retarded the growth of the plant, especially in the stiff lands; they were also injured by the frost. The indications now are that there will be a reduction in the acreage in the coming season of at least 23 per cent. *Pasquotank:* The frosts came earlier this season than usual, and a large part of the cotton was ruined. *Greene:* There never were so few pounds of lint to 100 pounds of seed-cotton. The seeds are extra large; three of this year's crop are equal in size to four of last. This is the case throughout the county. *Cumberland:* Owing to floods of rain in August, crops are short, of inferior quality, but nearly all saved by December 1. *Alexander:* The fall being very favorable for gathering cotton, the quality and quantity of the lint is better than last year. *Pamlico:* It is not an exaggeration to report that this is decidedly the worst cotton-year ever known, both as to quantity and quality of the crop. *Wayne:* I think the quality of this year's crop equal to that of last. *Gaston:* The crop is short of last year's. October frost caused a backwardness in the crop that few were prepared for. The early picking-season was delightful, insuring a large per cent. of strictly fine cotton. The quantity of stained or frosted cotton is double what it was last year. *Ran-*

dolph: More cotton raised this season than last, owing to increased acreage. The cotton-factories, five in number, on Deep River, which runs diagonally through this county from northwest to southeast, furnish a ready market for the most part of the cotton raised; and while the prices of the staple keep up to the prices they have been for some time, there will be, from year to year, an increase in its production. But I should observe that these factories also work up cotton raised in other counties. The quality of the lint is not so good as last year's, on account of early frosts and the wet season.

SOUTH CAROLINA.—*Chester:* Too much rain in August caused too rank a weed; and our farmers assign as a cause of short crop, early killing frosts. *Newberry:* Owing to the drought during the fall, the cotton suffered very much. The lint is shorter than usual. There is a great difference in the quality of different varieties. Peeler cotton produces longer lint, and of a better quality. *Union:* We have had an unusually favorable fall for gathering cotton, but the season was not propitious for the development of the lint. Samples are clean and white, but the lint is not so long or so fine as last year, and much lighter, as compared with the seed. Farmers differ as to the cause of this. Some attribute it to a long dry spell, others to a long wet spell. *Fairfield:* Cotton has been nearly all saved in good order. Some late picking badly stained by frost. *Barnwell:* The later growth, which promised an additional amount in September, did not mature. There was not lint-cotton enough in the bolls to open them. This was caused by drought, and accounts for the worse quality and lesser quantity of lint-cotton to seed-cotton, as compared with last year. From different samples I have ascertained, by careful weighing, that the lint will not average more than 29.4 pounds. *Williamsburgh:* The cotton-crop here is one-third short of last year's. It has been the most unfavorable year of any in an experience of twenty-three years. Wind, storms, floods, and drought have all combined in the disasters of the year. *Greenville:* The first picking gave about 28 pounds to the hundred, the second about 30 pounds. "It don't third itself this year." *Spartanburgh:* Farmers complain that the staple is short, and that the quality is not so good. A large percentage is stained, and some of it very badly so. *Lexington:* Some lots of cotton of this year have yielded only 28 pounds of lint to 100 pounds of seed-cotton; but 30 pounds is a fair average in this county. Two-thirds of an average crop has been gathered, and this is all that can be expected. *Clarendon:* As the early-picking season was dry and favorable, the quality of the lint is better. First killing frost appeared on November 17. For nearly a month we have had rain in abundance, and what remains of the crop is badly injured. *Edgefield:* Cotton will yield fully as much lint as usual; the year has been unusually dry. The drought has no doubt affected the lint; seeds are lighter. Cotton in first-rate order for ginning, (perfectly dry;) will make 33 pounds lint from 100 pounds seed-cotton. Not much rain during picking-season to stain early cotton, and but very little late cotton to be affected. The quality is much above an average. *Marlborough:* The cotton-crop is certainly one-fourth short of last year. In my experience of thirty years, in cotton-planting, I have never known such poor lint as compared with the seed-cotton. The result is disastrous to all. Short crop and low prices.

GEORGIA.—*Pickens:* We have been raising cotton in this county for only about three years. The climate is not suitable; we are compelled to use fertilizers to mature the crop. This season was not so favorable for cotton as last. *Stewart:* The quality of cotton is poorer than it has been for a number of years, and the yield less than was expected. The top crop has not opened enough to be estimated, owing to the warm, cloudy, and damp weather we have had for over a month. No frost as yet. *Gwinnett:* After paying for ginning, the yield of lint from seed is one-third. This yield is better than in former years, when the ratio was as 1 to 4. With improved varieties, and better culture and fertilization, we have this result. The season for gathering was better last year than this; less wet weather, but the yield of lint is equally good this year. *Oglethorpe:* Prices being so low, it is extremely difficult to have the cotton picked. We have been paying 40 cents a hundred and two meals per day; but stained cotton, such as the present, is hardly worth the picking. *Hancock:* I have never heard so much talk about cotton yielding short as this year; 1,500 pounds seed-cotton will not make over 450 pounds of lint; last year gave 500 pounds. *Milton:* Cotton was injured in quantity and in quality by the scorching sun in July, causing the lint to be short and light. *Jackson:* We have poorer cotton this year than last; "storm-cotton" is plentiful. *Forsyth:* Lint is short this year, and there is more stained and frosted cotton than last. *Fulton:* The yield is 20 per cent. below the general expectation of all well-informed planters, and 40 per cent. below the general estimate. *Dodge:* The winter has been very mild, and has caused our crops to gain at least 15 per cent. *Hall:* Cotton opened well; a fine fall; farmers industrious. Crop generally gathered; but little yellow cotton. *Laurens:* The quality of the crop is very much worse than last year. About half is stained and dirty from rains. Last year's crop was gathered without injury, and was very clean. *Telfair:* The lint is better than last year, but does not yield so much. All disposed of last year, and generally before it is made. *Decatur:* Cotton-seeds are large and heavy; lint is shorter and frequently stained. All planters who hired laborers and boarded them will lose money. *Lumpkin:* Not much cotton raised in this county; only 42 bales last year, though this year's crop is much better. *Dooly:* Crop is gathered early; quality better than last year; no storms. *Murray:* As the fall was dry last year, the seed was lighter than usual, and 100 pounds of seed-cotton made about 35

pounds of lint. This year the quality is at least 5 per cent. better than last; staple is fine and longer. *Madison:* With regard to the crop of this county, I have recently changed my opinion. I think that the present crop will perhaps equal last year's. *Terrell:* The top crop, which promised so well a few days ago, is now being ruined by the continuous cloudy and wet weather. No sunshine in ten days. Yield will be very small and of a poor quality. *Carroll:* Cotton was injured by drought and rust; so much so that it opened prematurely, thereby shortening the lint and causing it to be light. The crop in this county will not exceed 65 per cent. and is all gathered; and, considering the shortness of lint and the price, it is a failure. The price will not warrant the making. To make and gather the crop costs 12½ cents, and the ruling price has been only 11 to 11½ cents. *Jefferson:* Ginners inform me that where fertilizers were used, 100 pounds of seed-cotton barely yielded 30 pounds lint, while that without fertilizers made 35 pounds or more. They say they have made the test in many cases. The difference is accounted for by the heavier production of seed when fertilizers were used, and I think their theory is correct, having tested it in my own crop. *Taliaferro:* The very favorable weather, for development of lint, during the months of September and October, has made the average of lint-cotton higher, both in quality and in quantity, than last year; and yet the total crop will only reach 75 per cent. of last year's. *Troup:* The grade of cotton is not so fine this year as usual, on account of drought in the summer and rain in the fall; staple is short and stained with dirt. *Worth:* Dry weather, together with rust, have ruined cotton. Many planters who planted the same land, the same number of acres, with the same culture, and who made ten bags of cotton last year, are cut off to four bags this year. *Sumter:* The late crop is being injured by the continued cloudy weather, which we have had for the last twelve or thirteen days. To-day, December 2, a fine rain. *Walker:* The cotton crop is nearer a failure this year than any year since the war. The weed looks well, but, owing to the wet weather in October and September, it opens poorly. *Thomas:* It is still warm and wet. There are plenty cotton blooms and bolls; think they will not open, but rot. If it would turn cold, probably some bolls would open and make tolerable cotton. *Wilcox:* The quantity of cotton made this year in this county is as 115 compared with last year (1874.) It does not yield quite so much lint. Up to this date we have not had a killing frost. Cotton is still blooming in the field; almost all, however, has opened and is gathered. *Marion:* There is but very little cotton in the fields at this time, not more than one-tenth, if that much. We have had no frosts, except a light one in October. Although we have had a late fall, cotton is not improved; excellent weather for gathering. *Dougherty:* The late crop or second growth, which three weeks ago promised a good yield, has nearly all been destroyed by rain and cloudy weather, the sun not having shone in two weeks. *Liberty:* We have as yet had no killing frosts to destroy the cotton before maturity; the staple, therefore, is better. More attention also has been paid to the judicious selection of seed. The Cheatham cotton-seed is very productive. *Early:* Since September 1, there is in many places a wonderful crop of new bolls which are opening slowly, and if most of them open, the yield will be increased to 75. The weather has been and still is warm, cloudy, and rainy, and cotton is still blooming, which retards the opening of matured bolls. A sudden frost would close up the cotton-crop. *Walton:* The product of lint from 100 pounds seed-cotton varies materially. The average is about 33 pounds, while some kinds of cotton will give nearly 40 pounds. Other kinds, on account of the large size of the seed, will yield little over 25 pounds. As a general rule, as the seeds are less in size, the sample is better, hence all cotton-planters would be benefited by raising small-seeded cotton. The cotton-crop is fully equal to that of last year in all respects, and in some localities better. The entire crop is open to the top; very little stain from frost.

FLORIDA.—*Clay:* There is very little short-staple cotton made in this county; nearly all sea-island cotton. *Putnam:* So far as I can get information, there is a falling off in the amount of cotton planted from year to year. Attention is given to other crops; such as fruit. *Levy:* There has been no frost in this county this fall. More than usual, the weather has been damp. Some fields of cotton are still green and in bloom. The weather has been warm, but is now cooler, (December 8.) *Columbia:* Of the cotton planted in this county, 75 per cent. is sea-island. Upland made 33 pounds of lint per 100 pounds of seed-cotton. The first killing-frost appeared on the 9th instant. *Leon:* Our cotton stopped bearing in July, and looked as if it would die. The rains, beginning August 1st, caused a new growth, and, the weather being favorable, a very heavy top-crop was made, which is now opening. If the weather remains favorable for two weeks longer we will get enough to bring the crop to 80 per cent. of last year. No frost yet. *Suwannee:* The protracted drought of last summer has greatly injured the cotton-crop in this county; and yet cotton is very cheap, greatly discouraging the cotton-planters. I think that many will plant less hereafter, and some will abandon it altogether; as it costs more to raise the cotton than it brings. I am speaking of short-staple cotton. *Gadsden:* One hundred pounds of seed-cotton will rarely give over thirty pounds of lint any year, and the present is no exception. The usual estimate of one to three is entirely too high. The quality of lint this year is better than last. Cotton-picking in this county closed on the first of November. The bottom and middle bolls opened freely; labor was abundant. The promise of a top-crop was very flattering, but has not been realized, as the bolls did not open. On clay-lands the crop of top bolls is the heaviest I have ever seen, in an experience of over forty years. Could we have had clear weather and a

killing-frost the result would have been a large increase of the yield, but the reverse has been the case. The entire month of November has been damp and murky, and there has been no frost sufficient to check vegetation. *Jackson:* The progress of the crop was unpropitious from the start for a successful yield. At times during its growth appearances indicated a good crop, but disasters have made it poorer than any crop ever before. The full development of the boll is dependent upon the cultivation and regularity of the seasons. This year it was defective from irregularity in growth and progress to maturity, consequently the staple was irregular in length of fiber, and the yield a very poor crop in quality. The seeds were not full, coming out of the gin with defective lint adhering to them. Product: 33 to 35 pounds lint to 100 pounds seed-cotton; a little better last year. The crop of 1874 was 80 per cent.; that of 1875, 64 per cent. The top-crop, expected to be made and gathered, has been destroyed by wet weather and other causes.

ALABAMA.—*Dale:* Much more cotton gathered than was expected, even on the 1st of November. No frost yet to kill cotton, December 8. *Bullock:* The fall has been unusually mild, and favorable for gathering the crop. *Hale:* The crop is the best since 1870, but we have had an unfavorable fall for picking; owing to heavy rains the quality is in the main bad; last year very good. *Lauderdale:* The crop is the shortest since 1866; the weather has been so wet that the crop could not be gathered in time, hence the quality is very inferior. Very little of the crop will class above good ordinary. *Jefferson:* For the last four weeks, up to December 11, we have had damp weather, but no hard rains. Had the weather been dry and favorable the cotton would all have been gathered. *Shelby:* The crop at first was superior in quality to that of 1874, but the excessive rains and winds of September have stained the fiber, and have done other material injury. *Colbert:* Our cotton-crop this year is not so good in quality as last year's; much of it will not open on account of injury from frost. When the frost came (no sooner than usual) the cotton was full of sap, and growing. *Montgomery:* Drought has cut off the cotton-crop about 25 per cent. Late winter; no frost to kill cotton yet. The weed is still blooming and opening. *Franklin:* Farmers have been unusually slow this year in gathering cotton. It is owing to the almost incessant rainy weather since August. Cotton is ruining our country; there is no money in it here. *Butler:* We have had no killing-frost yet, and cotton is still blooming. In some places there are many grown bolls on the stalks, but very few will open. It requires warm, dry weather to make cotton open so late. This year 100 pounds of seed-cotton will only make 29 pounds of lint; last year 33 pounds; quality inferior. *Henry:* July drought nearly killed our cotton. The rains of August brought on, in appearance, a very fine top crop. It has been very slow to open, and is very light when gathered. *Clarke:* The cotton-crop on the uplands is very short this year, on account of a long drought. The low lands, where they have been too wet for years past, have made fine crops; in some instances a bale of 500 pounds to the acre. In many upland fields there is a second growth, though little can be expected from this. *Calhoun:* The yield of lint is not quite so good as last year. Wet weather during the last month (November) has damaged the quality. *Greene:* The weather was unusually bad in November. Wind and rain threw much of the cotton on the ground. *Limestone:* This portion of North Alabama has made the lightest cotton-crop known for years, if ever before. I think this county will not average more than a bale for every 10 acres. Some of my correspondents say a bale to 15 acres, others a bale to 6 or 7. The average of lint to 100 pounds seed-cotton is about 30 pounds; last year 32 pounds.

MISSISSIPPI.—*Smith:* The cotton in the fields will be worse than that already gathered. Continued wet weather (warm rains) has materially injured the cotton still in the fields. The seeds are sprouting. The yield will be less than last year and the quality inferior. *Wilkinson:* Continued cloudy, damp, foggy weather for five weeks, with frequent rains, has destroyed much cotton, greatly reducing the November estimate and seriously injuring the quality. *Lincoln:* There is much damaged cotton, caused by rains during the month of November. The latter part of November was particularly unfavorable for gathering cotton: that gathered since the 15th is in a very dirty and trashy condition. *Kemper:* I have remarked a falling off in the quantity of lint this year, greater than I have ever noticed before, and from that alone infer that there will be a greater reduction in the crop than was anticipated. *Noxubee:* For the last four or five weeks the weather has been very wet. Much cotton has been gathered and housed damp. In the black lands a great amount of cotton is yet in the fields, and, if the rain continues, half will be lost. The crop, if gathered, will be 5 or 10 per cent. better than last year. *Choctaw:* Not more than 80 per cent. gathered, in consequence of continued wet weather for three weeks. Cotton at present in the fields is injured; in low lands, almost ruined. *Lowndes:* Continued wet weather since the 10th of September has very much retarded the gathering of the cotton-crop, and has injured the quality. *Pike:* The cotton-crop is nearly gathered in this county. Owing to heavy rains picking has been stopped, and what is yet to be gathered will be very much damaged. Nobody holds back this cotton from the market. *Amite:* This season has been unusually wet for gathering. The crop of 1875 will fall short of what was expected in July and August. Excessive rains caused great losses along the streams. *Neshoba:* The quality is inferior, owing to much rain-fall during the last six weeks. *Rankin:* Rainy, damp weather has hindered picking and caused some rot. Weather growing worse, and threatening to be disastrous to cotton

still on the stalk, as also to a great part that has been gathered wet. *Lafayette:* We shall certainly make a third more cotton than we did last year. There is yet one-third of the crop in the fields. The late rains have injured it in quality as well as in quantity, much of it having been beaten out and is now on the ground. Killing-frosts did no injury; no stained cotton this year. *De Soto:* Hundreds of acres of cotton not picked, and from one-fourth to one-half of that is lost. I think, at least 25 per cent. more cotton has been made this than last year. *Grenada:* The staple is longer and better, but is not saved in so good condition as last year. This is owing to heavy and continued rains. It is estimated that from one-half to two-thirds of the crop is already gathered; but for the cause above given the remainder will be lost. *Tishemingo:* We were much deceived by the extra growth of the plant, expecting an additional amount of lint. Frost, rains, and winds have injured the crop about 10 per cent. *Coahoma:* Cotton opened up early this season, but on account of wind, rain, and political excitement has been gathered slowly; a larger proportion than usual has fallen out and is lost. *Chickasaw:* On account of heavy and constant rains during November, we could not gather cotton more than two days in the week. Much cotton has, therefore, been entirely lost, and the remainder is greatly injured. *Monroe:* Owing to the excitement during the recent election, and to unprecedented wet weather, it is impossible to say how much of the present crop will actually be saved. If the weather remains bad, but very little of the crop still in the fields can be made, as much of it has already been blown out and beaten into the ground. *Winston:* All the cotton that was gathered during the last month, and that which is yet to be made, has been badly injured by the rainy season, which set in much earlier than usual. Some of the cotton in the fields is hardly worth gathering. *Madison:* Elections and sickness among the hands during the fall have retarded cotton-picking. *Washington:* In this county to day (December 11) a great deal of cotton is in the field still untouched, so scarce is labor. *Lee:* Much cotton is yet in the fields. The crop in this county was at one time twice as large as last year's; but disasters may bring it down to near the same. One-half is now in the fields, and nothing but the best weather can save half of that. A great quantity of cotton is on the ground. Picking is worth $1 per hundred; hands hard to get. High, strong winds uncovered the cotton-pens and let in the constant rains until large quantities have rotted. Gins are making bad samples, as damp cotton will not gin well. Roads are almost impassable, requiring four oxen to haul a bale.

LOUISIANA.—*Rapides:* Much cotton has been lost by heavy rains, and the quality of that which remains is very much injured. Up to date (December 7) there has been no killing frost; cotton is still green. *Claiborne:* The late or second crop has not opened as was expected. The first killing frost appeared last night, December 9. *Concordia:* We have had two weeks of very bad weather; during the last ten days almost incessant rain. Damage to cotton in the field very great, as all of it is open. No killing frosts as yet. *Saint Landry's:* In consequence of too much rain during October and November, a great portion of the cotton is very inferior. Two weeks of fair weather will end cotton-gathering. *Jackson:* The cotton-crop in this parish is nearly all picked, and while the actual yield is 10 per cent. greater than that of last year, the quality is inferior. This is caused by the storm in September, which threw down the stalk into the sand and dirt, and not only occasioned a loss in the aggregate quantity, but did much injury to the staple. The weather throughout the picking-season has been all that could be desired. *Union:* In this parish the season has been unusually favorable for cotton-picking. The loss occasioned by the storm on September 17 is about all the farmer has sustained. We have had no frost as yet (December 1) to kill the plant. *Tensas:* Last year the crop was greatly below an average, owing to a general overflow. This year the season for growing was fine, and the yield full and abundant; but the gathering-season has been bad, and picking is hindered. Notwithstanding this, I think the quantity gathered will be equal to that of any year since the war, except 1870. *Washington:* The season for picking has been remarkably fine, and many farmers were agreeably disappointed in increased yield, as the weather had been warm and dry. Cotton continued to mature till the frost of the 7th of December. *East Baton Rouge:* The almost unprecedented warm and favorable weather during October and November considerably improved the cotton-crop and prolonged the picking-season. The plant is still blooming. As yet we have had no killing frost. I think the product will be 10 per cent. better than estimated in November. *Franklin:* The estimate (31 pounds lint to 29½ last year) is based on actual experiment. Incessant rains, and damp, cloudy weather, materially affected cotton, both in quantity and in quality. A considerable percentage sprouted in the pod and changed to a bluish cast. First killing frost, accompanied with thin ice, appeared on December 8.

TEXAS.—*Lampasas:* The season has been very favorable for cotton-picking. *Polk:* The great storm did considerable damage, but the estimated loss as to quantity was too high. The quality, however, is at least 25 per cent. below last year. *Burleson:* Since the storm of September 17, the weather has been favorable to the opening of bolls and the gathering of cotton. The yield is good, and nearly the whole crop saved. *Titus:* No rain and but light frosts this fall have been propitious for gathering cotton. Over three-fourths of the crop gathered and ginned. Lint entirely free from dirt; it is longer, and the fiber finer, than for many years; caused, I think, by the dry summer and fall. Crop of 1875 is over an average by 20 per cent. *Coryell:* The season for picking cotton has been remarkably fine. No rain from July 24 to November 15; in consequence, the crop was picked in fine

condition. The crop was full, the average in this county being half a bale (250 pounds) per acre. But a small per cent. yet in the field, and by the 15th of December the entire crop will have been picked. *Aransas:* The entire crop of our county for 1875 has been or will be picked. *Fort Bend:* For several years the cotton-worm has injured the quality of the cotton; their not appearing this year, the cotton is cleaner, has less motes, and grades better. From some cause, not well defined, the same amount of seed-cotton yields less lint this year than last. *Bosque:* The fall has been remarkably favorable for gathering cotton: the crop is nearly all out, but not yet ginned. Most of the crop has been gathered pretty free of trash, and as the staple is of better quality than usual, the proportion of good to inferior cotton this season is quite large. Very little low grades this year. The yield in lint is 32 pounds to 100 pounds seed-cotton. This low figure is accounted for by the unusually well-matured, heavy seeds, leaving less lint. *Fannin:* The crop will be housed by February 1, should the weather be at all favorable. The prices for gathering have been from $1 to $1.25 per hundred. *Red River:* The early picking will make 33⅓ pounds lint to 100 pounds seed-cotton, but the average will be about 30 pounds, the same as last year. The season up to December 1 has been beautiful, and almost without rain: in consequence, a greater proportion of the better grade will go to market. The crop is yielding largely; about 80 per cent. is gathered. *Bowie:* This has been a very propitious season for cotton-picking. The weather has been a continuation of Indian summer, until within a few days. Cloudy weather has set in, and now a norther is blowing. *Marion:* There have been 1,500 bales more cotton received at this port than at the same time last year. *Houston:* Our cotton was injured by drought and the storm on the 16th and 17th of September. Since the storm the fall has been, in every particular, favorable to cotton. No frost as yet. Second crop is opening finely; staple very good. *Montgomery:* Cotton gathered before the storm (September 17) is of superior quality: that picked since is not near so good. *Harrison:* It is remarkable that as yet (December 2) we have had no frost in the higher lands of this county. On my farm the tobacco, cotton, and tomato leaves are still green. Since the storm (September 17) we have had good weather for picking. *Wood:* Owing to the dry fall the seeds are small and light, while the lint is long, and turns out well. *Collin:* The present has been the most favorable season for gathering the cotton-crop in many a year. All will be housed before December 25. *Waller:* The storm filled the seed-cotton with dirt, so that the bales were recognized as "storm-cotton." A sample just taken from the bale is classed "ordinary." A little handling improves it and makes the sample a grade better. *Grayson:* This has been the best year for cotton since the close of the war. Our crop will run from three-fourths to one and a half bales per acre; last year scarcely half a bale was realized; this year the seed is very heavy, while the seed was very light, scarcely half matured, last year. Our acreage is about the same; if anything, less; yet we will double the crop of last year. *Washington:* Only one or two frosts yet, and not severe enough to kill growing cotton-bolls. We estimate, on an average, 1,600 pounds seed-cotton for a 500-pound bale. *Dallas:* The crop of 1875 is at least 50 per cent. better than that of 1874. First killing frost, 8th of November, ten days later than usual. Fall and winter unusually dry. Cotton all matured and open; will all be gathered. We estimate 400 pounds lint per acre; quality unsurpassed. *Victoria:* But for the storm in September the crop would have been the best since '69, the number of acres planted being the basis of comparison. *Smith:* These questions (referring to the cotton-circular sent out by the Department in November) are certainly well-timed, and would bear repetition the first week in January. It would give your correspondents an opportunity of reviewing and correcting their year's work. The seed this year is well matured and heavy, in consequence of the late rains. Staple remarkably good. One cotton-buyer says he has not seen a bad staple this year. There is some sand in it, however, from the late storm. *Liberty:* Weather most favorable for cotton-picking, and, but for the storm, the staple would be very superior. Cotton was picked off the ground and piled together, making the whole an inferior sample. *McLennan:* Seed-cotton varies in weight with the season. Early in the season the seeds are green and heavy, and it requires more seed-cotton to make a given amount of lint than later when the seeds are dry and light. *Gillespie:* To-day, December 7, we had the first frost. *Austin:* The September storm having destroyed the top crop and part of the ungathered cotton, (about 25 per cent. of the whole crop,) the difference between the present and last year's crop is about 25 per cent.; otherwise the crop would have been about the same. The quality is much better, doubtless, on account of the dry weather, which enabled farmers to house the cotton clean. Crop all gathered; many gins have been idle for weeks. The smallest crop in proportion to the acre planted for many years. *Bell:* The Hurlong variety will give 1 pound lint from 2¾ pounds seed-cotton, or 38⅓ pounds lint to 100 pounds seed cotton. Quality about the same as last year. This county will make about 15,000 bales this year; over half gone to market. Home prices from 9 to 11 cents for best grades.

ARKANSAS.—*Saint Francis:* Cotton-crop for 1875 will fall far short of expectation. It is hard to gather, and, when gathered, the sample is very inferior. Owing to blight, bolls are very small. *Boone:* Dry weather for the last three months has been favorable for the opening of the crop and for picking. *Izard:* The fine season for picking has been counteracted by general sickness, on account of which two-thirds of the crop is ungathered. *Miller:* The

fall has been unprecedentedly good for picking cotton, and the crop on the bottoms is the best I ever saw. But the hands are slow in picking, and, as the rains are now set in, about one-twentieth of the crop will waste on the ground. *Jefferson:* This fall has been unusually good for picking cotton, which is nearly all gathered. Lint much stronger and heavier than last year. *Prairie:* Until within the last ten days, we have had the best of weather for gathering and putting in our crops. *Bradley:* Cotton better matured than last year, hence better quality; weather remarkably fine; no killing frost yet; cotton still opening. *Monroe:* The unusual heavy rains for the last ten days have injured the cotton now in the field at least 15 per cent.; weather still unsettled. *Franklin:* Number of pounds of lint to 100 pounds seed-cotton averages 32½. About 30 pounds was last year's average; quality much better this year; at least 90 per cent. already gathered. I am confident 5,000 bales will be made in this county. Compared with previous crops, I estimate this year's at 100 per cent. full. The season has been favorable for gathering, and labor abundant, hence cottonis gathered in good condition. *Yell:* The season for picking has been the best fo r yearsand still continues good. The crop gathered so far is as good as can be, and the staple fine. *Fulton:* We have had remarkably favorable weather for gathering the crop, but sickness has caused a greater or less hinderance. *Crittenden:* The price paid per hundred for picking cotton is from $1 to $1.25, and yet there are thousands of laborers around Memphis, Tenn., that cannot be induced to work; hence we will be late in getting in our crop; loss considerable from inclement weather. *Dallas:* Cotton-fiber is stronger than I have seen it for ten years. An unusually large per cent. has been gathered free from dirt and sand. Crop nearly all housed. The answer (175 per cent.) to the question, "What per cent. of the actual crop of 1874 will be gathered in your county in 1875?" may appear too large, but I believe the cotton and corn crops are nearly twice last year's. *Montgomery:* In comparing this crop with that of last year we make a very good showing, as last year everything suffered from drought. The quality this year is better, because the dry fall permitted the fiber to be picked in a pure white, unstained condition. Cotton matured and opened exceptionally early, without becoming stained or frost-bitten. *Crawford:* There is now more unpicked cotton than there was at this time last year, which is owing to the fact that up to about three weeks ago very little wheat was sown, but since this time wheat has been put in to the neglect of cotton. As the weather has been dry and favorable for picking, the cotton is cleaner, seed is lighter, and, on the whole, lint is considerably better than last year.

TENNESSEE.—*Maury:* This county usually makes from 18,000 to 20,000 bales of cotton; this year the yield will not exceed 5,000 bales. *Dyer:* In consequence of wet weather and frost, which damaged the cotton-crop very materially, the yield of this county will not exceed last year's. The crop is about half an average good crop. *Weakley:* Our cotton-crop was very badly damaged by frost, and recent rains have beaten out many of the bottom bolls into the ground, thus soiling aud staining a heavy percentage of the crop. *Giles:* I am a native Tennesseean, fifty-five years old, but never have seen such a complete failure of the cotton-crop. It required eight or ten of the best acres to make a bale. *Putnam:* The cotton-crop for this year seems to be unnatural. The bush runs up hard and spindling; bolls are small and hard, and until very recently failed to open. The reason I assign for this is incessant rains and cloudiness for nearly two months, June and July; hence the quality is inferior. *McNairy:* I have been running a gin for ten years, during which time no year produced as little lint to the 100 pounds seed cotton as the present has. All ginners I have seen say the same. Causes of this are, excessive rains while the plant was growing and maturing, and heavy, cloudy weather for two-thirds of the time since the gathering season has set in. One-fourth of the crop lies ungathered on the ground, beaten down by heavy rains and winds. *Fayette:* The yield of lint, in proportion to seed, is much better than usual. Drought cut off all late bolls. What cotton we have opened and matured early. The drying-influence of the atmosphere lessened the weight of the seed, and made the quality better. November 4 a severe and destructive wind and rain storm visited us, followed by almost continued unfavorable weather to the present time, so much so as greatly to reduce the average of the crop. The remaining portion of our crop will be less in quantity and worse in quality than any former reports have indicated. *Tipton:* The cotton-crop in my county this year (acreage 10 per cent. less) is at least 25 per cent. larger than last year. Allowing 3¼ pounds of seed-cotton to one of lint, 100 pounds of seed-cotton will make 30⅘ pounds lint. Last year the yield was 28¼ pounds, reckoning 3½ pounds of seed-cotton to one of lint. Quality is better. The low price of cotton makes laborers indifferent. Picking is backward, and recent heavy rains have done serious damage. *Hardeman:* In this county, owing to a very dry summer and fall, last year's crop opened three weeks earlier tnan the present one, and was all gathered by the 1st of December. This year the summer and fall have had regular rains, and more sickness prevailed among the operatives in August, September, and October than has been known here for a quarter of a century. After consultation, we conclude that the present crop is not more than 20 per cent. over that of 1874. If we continue to have rain and such general unfavorable weather as now, we shall not gather more than last year. Prices low, and the country will experience continued "hard times."

WINTER-WHEAT.

The acreage in winter-wheat is about equal to that of the previous crop in the New England and Middle States, where the condition is full average on the whole. A small fly, description not given, injured the crop somewhat in Warren, New Jersey. Several counties in Pennsylvania report early-sown crops superior in condition to those later sown. In the South Atlantic coast States a small decrease in area sown, in Maryland and Virginia, is fully compensated by the increased acreage of the other States of this region, especially of South Carolina, which has enlarged her area 11 per cent. The condition of the crop on the first of December was full average, or above, in all the States except Virginia, which discounts her expectations 2 per cent. Some complaints of poor seed and of the ravages of the fly are here noted. The benefits of early sowing are also apparent in several counties. The use of Fultz wheat has led to a thinner seeding in some localities. The prospect is fully as good, if not better, further down the coast. The use of Navassa phosphates in fertilization is noted in Lincoln, North Carolina. In the Gulf States, the acreage has increased about 12 per cent., Texas having added 20 per cent. The condition is considerably above average in all but Texas, where it is estimated at 7 per cent. below. The seeding appears to have been late, and drought at several points has prevented the crop from coming up as rapidly as was desired. In Bosque, Texas, the seeding was delayed by grasshoppers and drought.

In all the inland Southern States there is a reduction of acreage amounting to about 5 per cent. on the whole. In West Virginia, the condition is about 4 per cent. above average, but in the other States of this region it is estimated at about the same rate of decline. Unusual pains were taken in many counties in preparing the ground, and in putting in the seed. Grasshoppers injured early-sown crops in Ohio and Hardin Counties, Kentucky. Complaints of poor seed have been received from several counties.

Of the great wheat-producing States north of the Ohio River, only Michigan equals her acreage of last year; Ohio declines 5 per cent., Indiana 13 per cent., Illinois 19 per cent., and Wisconsin 3 per cent.; the reduction of area in this region is about 10 per cent. Ohio alone reports a full average condition; Michigan and Indiana are 10 per cent., and Illinois and Wisconsin 5 per cent. below. Late seeding is noted in several counties where the crop is not very promising.

In the States west of the Mississippi, Minnesota alone has increased her very small acreage of winter-wheat. Iowa has reduced hers very materially, as, also, have Missouri and Kansas. In Minnesota and Iowa the condition is full average, but in Missouri the outlook is quite discouraging in a large number of counties. The drought and lack of snow indicate a severe exposure of the grain to winter-freezing. Lincoln County reports the presence of the fly, while in Jefferson, a small red grasshopper eats the plants as fast as they come up. Drought injures the crop in several counties of Kansas and Nebraska, but other counties report a very fine prospect. On the Pacific coast, California reduces their acreage, and Oregon quite heavily. In California the condition is below average, though the rains have fallen very copiously and earlier than usual. In Oregon the season, up to December 1, was very favorable. The following notes, from our December correspondence, will illustrate the prospects of the coming crop:

New Jersey.—*Warren:* A small fly has injured the crop.

Pennsylvania.—*Sullivan:* Looking badly. *Indiana:* Early sown looks promising, late not so good; planting delayed. *Union:* Wheat looks well. *Montour:* Looks well.

Tioga: Wheat late sown, and not very promising. *Lycoming:* Looks fine. *Clearfield:* Looks poor.

MARYLAND.—*Baltimore:* Wheat looks well; fine autumnal weather. *Howard:* Increased acreage, especially of Fultz. *Montgomery:* The large tobacco-crop absorbed so much attention that winter-grain was comparatively neglected.

VIRGINIA.—*Spottsylvania:* Fall favorable, and growing wheat looks stronger than usual. *Caroline:* Weather too cold. *Dinwiddie:* Since the Fultz wheat came, thin seeding has become more general; crop seeded late, but in average condition. *Gloucester:* Increased acreage; season good. *Middlesex:* Seeded late and looks inferior. *Pulaski:* Much poor seed and late sown, but crop improved by late rains. *Carroll:* Looking fine. *Augusta:* Good stand of wheat. *Halifax:* Sown early and looks well. *Washington:* Some signs of fly in early sown.

NORTH CAROLINA—*Lincoln:* Sowing late; increased use of Navassa phosphate. *Mecklenburgh:* Late sown. *Yancey:* Does not look so well as usual. *Davidson:* Finest seeding season for years. *Nash:* Largest acreage of wheat—1,500—ever known; 800 acres of rye. *Transylvania:* Increased wheat-acreage. *Hertford:* Increased acreage. *Wilson:* Increased acreage.

SOUTH CAROLINA.—Looks well.

GEORGIA.—*Forsyth:* Wheat sown late. *Troup:* More wheat and oats sown than since 1865. *Carroll:* General disposition to sow largely of small grain. *Wilcox:* Increased acreage in oats. *Dawson:* Wheat looks well; good sowing season. *Hall:* Wheat-acreage increased 10 per cent. *Barton:* Fine fall for seeding. *Madison:* Seeding delayed by rains.

ALABAMA.—*Crenshaw:* Increased acreage in wheat, rye, and oats. *Calhoun:* Seeding late.

MISSISSIPPI.—*Winston:* Crops not half up.

TEXAS.—*Coryell:* Wheat in larger acreage than ever before. *Bowie:* Department seeds doing finely. *Dallas:* Increased wheat-acreage, but condition injured by drought. *Titus:* Drought since September; increased acreage, but ground too dry to sprout it. *Collin:* Wheat backward; drought. *Williamson:* Wheat-acreage more than double; looks well. *McLennan:* Wheat-acreage nearly doubled. *Lamar:* Too dry. *Bosque:* Seeding thirty days late; grasshoppers and drought. *Gillespie:* Increased wheat-acreage. *San Saba:* Sowing late on account of drought.

ARKANSAS.—*Baxter:* Seeding delayed by drought. *Independence:* Depressed condition on account of late sowing. *Fulton:* Injured by long drought. *Montgomery:* Late sown. *Calhoun:* Wheat-acreage tripled. *Boone:* Late seeding.

TENNESSEE.—*Fentress:* Unusual pains in preparing ground and seeding wheat; increased use of drills; acreage increased 20 per cent. *Blount:* Late seeding. *Lincoln:* late sown. *Putnam:* Wheat unusually fine. *Bledsoe:* Looks very well. *Gibson:* Rains have delayed seeding and cut down the acreage.

WEST VIRGINIA.—*Jefferson:* Wheat-acreage reduced 10 per cent.; that of rye increased 40 per cent.; wheat-acreage about 25,500 acres. *Mercer:* Acreage reduced by drought. *Taylor:* Looks well. *Raleigh:* Looks well. *Upshur:* Late sown but thrifty.

KENTUCKY.—*Nicholas:* Wheat late sown, but looks well for the time. *Boyle:* Acreage gradually decreasing, owing to scarcity and inefficiency of labor. *Graves:* Late sown and poor; Hessian fly and grasshoppers complained of. *Lincoln:* Wheat well got in and secured. *Logan:* Very imperfect seed causes great anxiety as to the next wheat-crop. *Ohio:* Acreage small on account of drought and fear of grasshoppers; the insects damaged early-sown crops so as to require the fields in some cases to be resown. *Owsley:* Good seed scarce. *Butler:* Wheat has come up badly; in some fields not 1 grain in 50 has sprouted. *Hardin:* Looks badly; injured by grasshoppers.

OHIO.—*Coshocton:* Wheat looks remarkably well. *Morrow:* Looks remarkably well. *Noble:* Too wet. *Tuscarawas:* Looks remarkably well. *Adams:* Late sown and reduced in acreage; thin on the ground. *Crawford:* Looks well. *Montgomery:* Fine growing weather. *Morgan:* Great reduction of acreage. *Hocking:* Looks well. *Wood:* Very promising.

MICHIGAN.—*Wexford:* Remarkably poor. *Ottawa:* Stands very evenly.

INDIANA.—*Clark:* Wheat looks well. *Grant:* Looks well. *Carroll:* The poorest growth for years. *Steuben:* Looks bad. *Warren:* Looks fine. *Harrison:* Unfavorable sowing season; early-sown fields injured by the Hessian fly.

ILLINOIS.—*Madison:* Backward and feeble; poor prospect. *Edwards:* Small and puny. *Pope:* Late sown. *Fayette:* Poor. *Schuyler:* Low condition. *Pike:* Looks very poor.

WISCONSIN.—Unusually small. *Crawford:* Late sown, but looks well.

IOWA.—*Guthrie:* Will have a hard time with the dry winter-freezing; no snow yet.

MISSOURI.—*Gasconade:* Very poor prospect. *Jefferson:* Very unpromising; eaten by a small red grasshopper as fast as it sprouts. *Franklin:* Very backward. *Crawford:* Wheat-acreage small. *DeKalb:* Wheat looks well, but the ground is too dry to protect the roots. *Carroll:* Small acreage and not doing well. *Moniteau:* Small acre-

age. *Ballinger:* Drought. *Daviess:* Unpromising. *Lincoln:* Some damage from the fly. *Shelby:* Acreage reduced one-half by drought. *Penniscot:* But little sown on account of floods. *Reynolds:* Little sown. *Cole:* Outlook bad.

KANSAS.—*Pawnee:* Drought. *Saline:* Unfavorable. *Franklin:* Very low. *Doniphan:* Splendid condition. *Douglas:* Too dry. *Labette:* Very promising. *Lincoln:* Never so poor. *Reno:* Dry. *Leavenworth:* Too dry. *Miami:* Small acreage. *Montgomery:* Looks well; 34,000 acres.

NEBRASKA.—*Cass:* Drought.

CALIFORNIA.—*San Joaquin:* Looks well. *Kern:* Season very favorable. *Sonoma:* Our summer fallow wheat is 3 or 4 inches high; ground saturated and weather warm. *Tuolumne:* More rain than ever before known in November. *Contra Costa:* Copious rains will render every spot available for seeding grain. *San Luis Obispo:* Warm and very wet. *Amador:* Early-sown grain already up and looking finely. *Lake:* Grain but little sown as yet. *Placer:* Rains have put the ground in fine condition for grain. *Plumas:* Unusually dry. *Tulare:* Best prospect for six years.

OREGON.—*Linn:* Unprecedented rain-fall; little seeding done. *Benton:* Rain-fall copious. *Clackamas:* Fine growing season for winter-wheat. *Clatsop:* Favorable to winter-grain.

Table showing the average yield per acre and price of the principal crops of the United States in December, 1875, and the area and condition of winter grain.

States.	CORN.		WHEAT.		RYE.		OATS.		BARLEY.		BUCKWHEAT.		POTATOES, (*Solanum tuberosum.*)	
	Average yield per acre in 1875, stated in bushels.	Average price per bushel, December 1, 1875.	Average yield per acre in 1875, stated in bushels.	Average price per bushel, December 1, 1875.	Average yield per acre in 1875, stated in bushels.	Average price per bushel, December 1, 1875.	Average yield per acre in 1875, stated in bushels.	Average price per bushel, December 1, 1875.	Average yield per acre in 1875, stated in bushels.	Average price per bushel, December 1, 1875.	Average yield per acre in 1875, stated in bushels.	Average price per bushel, December 1, 1875.	Average yield per acre in 1875, stated in bushels.	Average price per bushel, December 1, 1875.
Maine	30.5	$0 96	13	$1 64	16.1	$1 18	27	$0 56	21	$0 89	24.5	$0 70	107	$0 42
New Hampshire	38	94	17.4	1 64	18.5	1 11	38.6	57	25.1	1 02	20	78	133	42
Vermont	37	94	18	1 55	20	1 01	39	50	29.4	91	21.3	71	155	33
Massachusetts	37	95	16	1 37	17.5	1 07	36	61	24.5	1 09	11	62	160	52
Rhode Island	27.5	1 10	.....	.....	15	1 20	30	60	20	1 00	.....	.....	130	50
Connecticut	28	1 00	15	1 33	15	1 10	28	61	20	1 12	17.5	95	105	56
New York	32	74	8	1 31	12	86	34	44	19.7	89	16	67	128	36
New Jersey	41	65	12	1 36	12.7	89	25	48	.....	.....	17	77	105	54
Pennsylvania	40	58	12.8	1 29	13.4	85	30	41	23	1 02	20.6	69	96	42
Delaware	36	57	13.5	1 40	13.5	95	21	43	.....	.....	20.7	78	75	72
Maryland	36	55	11	1 37	12.3	77	20	44	.....	.....	23.3	61	70	54
Virginia	22	54	8	1 21	9	78	15	49	.....	.....	17.5	67	82	52
North Carolina	14	60	7.5	1 24	9	87	13	58	18	75	19	50	85	67
South Carolina	9	1 00	7	1 70	6.5	1 37	12.5	86	.....	.....	.....	.....	90	1 01
Georgia	10	86	7.5	1 50	6.7	1 49	11	89	12	1 78	14	1 00	68	1 20
Florida	10	1 08	.....	.....	11.2	1 87	13	1 05	.....	.....	.....	.....	110	1 87
Alabama	12.6	75	8	1 23	10.5	1 52	14	84	.....	.....	.....	.....	50	1 32
Mississippi	18	72	11	1 51	11.8	1 42	20	89	.....	.....	.....	.....	75	97
Louisiana	15.5	89	6	2 33	5.7	2 00	14	1 10	.....	.....	.....	.....	75	1 10
Texas	20	83	18	1 27	18.1	1 10	32	72	30	95	.....	.....	100	1 22
Arkansas	30	52	12.3	1 05	13.7	1 03	29.5	58	.....	.....	.....	.....	101	79
Tennessee	30.5	41	8.5	1 01	9.4	89	18	45	19	80	.....	.....	70	56
West Virginia	29.1	56	6.7	1 38	11	93	21	42	.....	.....	17	82	116	51
Kentucky	33.3	41	10	1 05	12.4	91	21	46	20.5	90	.....	.....	98	49
Ohio	33.2	44	9.5	1 09	11	76	37.2	36	18.5	90	15.9	82	103	36
Michigan	33	61	13.5	1 15	14.1	86	35	43	20.5	92	18.7	69	125	31
Indiana	34.5	39	9	97	12	75	29	33	18	88	19	95	114	36
Illinois	34.5	34	10.5	91	16.5	61	33.3	28	26.7	70	15	80	130	32
Wisconsin	21	54	14	91	17.5	68	38.5	33	31.4	92	13.5	79	105	29
Minnesota	29.4	42	17	86	19.5	59	36.5	32	28.7	76	16.7	76	127	29
Iowa	35	27	9.7	71	18.1	27	37.7	24	32.3	53	19.6	77	131	24
Missouri	36.6	28	9	95	13.4	68	31.6	27	19	94	17.4	65	110	37
Kansas	38.4	23	12.5	87	16	51	28.2	24	21.2	57	17.8	72	112	27
Nebraska	38.5	20	9.8	64	16.5	52	36.3	22	22.4	45	21.5	75	175	19
California	36.3	1 07	11	1 18	17.5	92	33	72	19	91	35	1 50	125	94
Oregon	27.6	91	17.6	87	19.5	95	35	55	29.1	70	18.4	1 05	130	76

Table showing the average yiel per acre and price of the principal crops, &c., in December, 1875—Continued.

States.	POTATOES, (*batatas edulis,*) SWEET.		LEAF TOBACCO.		HAY.		SORGHUM MOLASSES.		WINTER WHEAT.		WINTER RYE.		WINTER BARLEY.	
	Average yield per acre in 1875, stated in bushels.	Average price per bushel on December 1, 1875.	Average yield per acre in 1875, stated in pounds.	Average price per pound on December 1, 1875.	Average yield per acre in 1875, stated in tons and hundredths.	Average price per ton on December 1, 1875.	Average yield per acre in 1875, stated in gallons.	Average price per gallon on December 1, 1875.	Area sown compared with 1874.	Average condition December 1.	Area sown compared with 1874.	Average condition December 1.	Area sown compared with 1874.	Average condition December 1.
Maine	.....	.....	.....	.....	.95	$10 85	.....	.....	100	100	100	100	.....	.....
New Hampshire	.....	.....	1,650	$0 15	.95	12 81	.....	.....	94	101	99	102	.....	.....
Vermont	.....	.....	.....	.....	1.13	10 30	.....	.....	100	100	100	100	.....	.....
Massachusetts	.....	.....	.....	.....	1.00	20 89	.....	.....	.....	.....	105	99	.....	.....
Rhode Island	.....	.....	.....	.....	.95	23 00	.....	.....	.....	.....	100	100	.....	.....
Connecticut	.....	.....	1,500	23.3	1.05	21 75	.....	.....	100	100	100	100	.....	.....
New York	.....	.....	.....	.....	1.17	14 00	.....	.....	91	93	98	100	100	100
New Jersey	82	$0 85	.....	.....	1.00	21 56	.....	.....	101	101	91	102	.....	.....
Pennsylvania	85	92	650	14	1.10	17 12	.....	.....	101	98	100	96	100	95
Delaware	108	80	.....	.....	1.20	18 33	75	$0 50	100	100	100	103	.....	.....
Maryland	91	72	825	8.7	1.00	18 93	71	65	99	100	93	96	.....	.....
Virginia	72	67	653	9.5	1.20	16 53	94	53	99	98	100	96	.....	.....
North Carolina	90	52	620	8.8	1.25	12 51	84	53	102	101	100	100	102	100
South Carolina	73	72	.....	.....	1.00	20 50	40	67	111	100	100	100	100	100
Georgia	64	59	550	23.7	1.50	17 68	68	59	103	103	108	104	137	114
Florida	150	49	800	.....	.....	.....	.....	.....	.....	.....	100	100	.....	.....
Alabama	73	69	465	51.8	1.50	19 43	87	65	109	109	105	116	142	127
Mississippi	111	55	317	25	1.75	17 00	82	60	108	102	97	106	.....	.....
Louisiana	86	63	.....	.....	.....	.....	67	65	100	105	110	107	.....	.....
Texas	110	76	470	30	1.25	12 50	112	74	120	93	114	98	115	94
Arkansas	105	70	823	12.2	1.40	16 30	108	70	91	91	111	93	.....	.....
Tennessee	82	61	664	9.2	1.36	16 24	93	47	97	96	95	98	108	102
West Virginia	81	1 05	631	11.3	1.20	13 74	78	61	96	104	100	102	.....	.....
Kentucky	71	78	618	8.5	1.45	14 25	80	44	95	98	101	102	100	99
Ohio	81	1 21	712	6.8	1.10	12 97	90	59	95	100	95	99	83	95
Michigan	50	1 17	.....	.....	1.20	14 50	107	90	100	90	108	98	113	92
Indiana	104	91	636	5.3	1.30	11 49	103	70	87	90	94	95	83	92
Illinois	97	92	550	6.8	1.40	9 73	93	55	84	95	91	108	.....	.....
Wisconsin	.....	.....	700	17.3	1.35	9 53	63	53	97	93	100	99	.....	.....
Minnesota	.....	.....	.....	.....	1.35	5 25	78	65	113	101	98	103	.....	.....
Iowa	112	1 12	.....	.....	1.35	5 78	98	59	52	100	98	99	.....	.....
Missouri	90	76	724	9.5	1.30	10 23	107	49	73	75	83	79	68	81
Kansas	93	90	.....	.....	1.35	3 04	120	47	73	98	121	97	.....	.....
Nebraska	92	1 42	.....	.....	1.33	3 65	87	62	71	93	124	93	.....	.....
California	162	1 16	1,500	20	1.40	16 32	.....	.....	91	95	115	100	106	96
Oregon	.....	.....	.....	.....	1.37	11 07	.....	.....	58	100	83	94	83	100

Table showing the estimated numbers of farm-stock, expressed as a percentage of the numbers of the previous year, and also an average of actual prices in January, 1876.

States.	HORSES.					MULES.					MILCH-COWS.	
	Total number of horses compared with that of January, 1875.	Average price per head under 1 year old.	Average price per head between 1 and 2 years old.	Average price per head between 2 and 3 years old.	Average price per head over 3 years old.	Total number of mules compared with that of January, 1875.	Average price per head under 1 year old.	Average price per head between 1 and 2 years old.	Average price per head between 2 and 3 years old.	Average price per head over 3 years old.	Total number of milch cows compared with that of January, 1875.	Average price per head at this time.
Maine	101	$29 50	$47 40	$72 64	$106 47	.....	.....	.....	.....	.....	101	$37 00
New Hampshire	100	29 62	49 67	71 75	107 50	.....	.....	.....	.....	.....	103	38 50
Vermont	103	29 70	48 95	74 80	106 30	.....	.....	.....	.....	.....	104	33 70
Massachusetts	99	30 00	48 33	72 66	108 33	.....	.....	.....	.....	.....	101	48 33
Rhode Island	100	30 50	50 00	82 50	110 50	.....	.....	.....	.....	.....	100	39 00
Connecticut	101	30 00	49 75	80 00	108 33	.....	.....	.....	.....	.....	98	43 33
New York	102	35 00	57 50	86 29	111 58	100	$41 00	$64 50	$98 00	$114 37	102	37 50
New Jersey	100	44 37	75 62	102 50	126 25	100	42 00	75 00	102 00	130 00	98	44 37
Pennsylvania	102	34 58	54 72	80 45	108 39	103	38 50	60 38	87 75	115 00	101	34 68
Delaware	98	35 50	50 00	70 00	95 00	100	40 00	57 50	72 50	105 00	.....	32 00
Maryland	101	33 44	54 75	80 00	108 50	102	45 00	72 14	100 00	130 00	101	30 31
Virginia	102	27 61	43 06	64 27	86 35	100	34 32	52 50	78 75	98 60	99	22 77
North Carolina	101	31 31	48 16	67 92	90 00	105	34 70	55 00	80 14	99 00	102	15 48
South Carolina	99	32 86	50 00	74 60	100 00	97	31 43	57 14	80 71	102 86	100	19 75
Georgia	101	30 00	47 50	70 50	98 00	105	31 34	50 69	79 11	99 00	103	17 02
Florida	101	38 00	55 55	80 00	103 00	98	40 00	63 33	95 00	113 33	101	14 62
Alabama	100	32 64	51 98	67 16	85 27	99	37 26	54 37	77 18	95 41	99	20 27
Mississippi	101	27 41	42 79	62 35	89 00	100	32 00	50 50	74 50	102 70	97	21 03
Louisiana	102	17 00	26 67	43 50	85 00	100	30 00	50 00	78 00	104 00	103	20 71
Texas	107	13 04	19 32	28 28	45 50	109	20 81	32 63	49 16	67 99	95	15 72
Arkansas	106	19 79	29 64	43 94	68 80	103	25 83	38 58	58 66	83 00	106	16 20
Tennessee	100	30 00	45 60	62 45	82 50	95	32 80	49 02	72 50	90 00	93	20 83
West Virginia	105	26 56	41 02	57 97	78 55	100	30 90	47 65	69 72	93 75	101	25 77
Kentucky	104	26 25	39 60	55 30	75 00	96	29 24	46 70	68 50	88 72	99	27 94
Ohio	101	29 31	46 92	65 37	92 00	99	32 00	50 00	71 60	95 15	104	32 65
Michigan	103	33 12	53 52	76 69	98 00	103	34 20	53 80	78 18	109 00	104	33 70
Indiana	102	26 11	40 52	58 49	80 32	99	28 81	45 50	68 67	96 15	97	27 40
Illinois	103	24 63	37 79	56 15	78 45	100	30 15	45 38	67 60	94 50	99	29 05
Wisconsin	101	26 25	43 92	62 96	90 12	103	33 67	52 71	74 62	105 00	107	26 75
Minnesota	107	30 60	48 00	71 19	101 05	103	38 50	60 50	83 50	112 00	107	25 19
Iowa	106	26 73	40 60	59 52	84 88	103	33 73	48 47	71 21	101 50	105	26 90
Missouri	102	20 76	30 56	43 09	59 95	101	27 50	39 51	58 25	77 68	99	20 86
Kansas	105	20 86	31 19	45 85	66 42	106	28 09	37 59	57 00	85 20	100	23 76
Nebraska	114	24 32	41 00	63 00	83 45	107	33 18	55 00	77 31	107 63	111	28 09
California	91	16 88	26 00	37 00	62 25	94	23 00	34 33	55 00	93 50	107	31 46
Oregon	107	19 00	27 50	39 28	60 43	101	18 50	25 40	36 00	62 00	106	21 75

Table showing the estimated numbers and prices of farm-stock in January, 1876—Continued.

States.	OXEN AND OTHER CATTLE, (NOT INCLUDING MILCH-COWS.)					SHEEP.			HOGS.		
	Total number of oxen and other cattle compared with that of January, 1875.	Average price per head under 1 year old.	Average price per head between 1 and 2 years old.	Average price per head between 2 and 3 years old.	Average price per head over 3 years old.	Total number of sheep compared with that of January, 1875.	Average price per head under 1 year old.	Average price per head over 1 year old.	Total number of hogs compared with that of January, 1875.	Average price per head under 1 year old.	Average price per head over 1 year old.
Maine	100	$10 89	$20 43	$33 19	$58 22	107	$3 00	$4 03	98	$9 53	$23 75
New Hampshire	101	11 12	21 37	34 50	59 37	100	3 40	2 87	101	11 25	27 25
Vermont	100	9 00	16 40	28 50	56 80	95	3 15	3 97	99	9 89	23 50
Massachusetts	99	14 00	22 33	38 33	65 33	100	3 00	3 75	100	12 50	26 33
Rhode Island	100	13 50	22 00	38 50	57 50	100	3 25	4 00	99	13 00	25 50
Connecticut	99	12 16	18 75	32 00	56 00	105	3 70	4 30	96	12 16	23 25
New York	99	10 31	19 40	32 08	51 96	97	3 15	4 25	97	8 39	18 10
New Jersey	99	12 12	21 25	35 00	47 25	99	4 75	5 08	93	11 12	20 50
Pennsylvania	98	10 65	19 28	31 35	45 95	98	2 80	3 95	94	8 01	18 00
Delaware	100	8 50	12 75	20 00	32 00	102	3 00	3 75	97	7 30	16 50
Maryland	103	9 25	14 66	24 64	36 32	102	3 16	4 21	94	5 34	10 27
Virginia	100	6 22	10 72	17 57	25 00	97	2 40	3 15	89	3 25	7 14
North Carolina	101	3 53	6 33	10 21	15 35	103	1 29	1 73	94	2 56	6 32
South Carolina	100	5 50	8 75	13 80	18 00	97	1 42	1 97	91	3 25	7 00
Georgia	102	3 97	5 97	9 29	13 47	99	1 27	1 94	101	2 27	5 85
Florida	103	4 00	5 87	8 50	11 56	120	1 40	2 08	92	1 17	4 06
Alabama	99	5 44	8 12	12 40	18 71	102	1 48	2 11	83	2 68	6 07
Mississippi	97	4 25	7 11	11 19	17 22	103	1 44	2 00	103	2 95	6 47
Louisiana	106	3 92	6 86	10 50	17 25	99	1 50	2 32	106	2 50	6 14
Texas	93	3 54	5 87	9 13	14 18	117	1 38	2 29	95	2 32	5 86
Arkansas	105	3 80	6 72	10 25	16 00	105	1 40	2 30	102	2 40	6 10
Tennessee	95	4 75	8 57	13 22	20 64	100	1 50	2 40	86	3 57	8 77
West Virginia	99	8 66	15 61	25 00	36 20	101	2 06	2 83	89	3 75	8 71
Kentucky	99	8 22	14 72	24 32	36 05	90	2 39	3 06	84	3 89	10 19
Ohio	97	9 40	17 66	28 36	41 55	99	1 95	3 09	92	5 63	13 50
Michigan	101	7 90	15 48	26 94	43 00	101	2 00	2 94	100	5 80	13 18
Indiana	98	7 19	13 68	21 84	33 62	89	1 89	3 00	80	5 18	13 33
Illinois	99	7 50	14 00	24 24	35 74	95	1 75	2 75	87	5 76	13 75
Wisconsin	103	7 00	12 48	19 52	33 00	96	2 00	3 13	92	5 64	13 41
Minnesota	108	7 24	12 80	20 14	33 80	108	1 90	3 00	101	5 08	11 28
Iowa	105	8 45	14 61	23 78	35 72	98	1 95	3 00	97	5 78	13 75
Missouri	100	6 41	11 56	18 59	28 81	94	1 46	2 09	87	4 14	9 80
Kansas	102	6 98	13 01	20 72	30 28	126	2 10	3 15	106	5 82	14 92
Nebraska	110	7 00	13 17	21 24	32 54	123	1 91	3 00	97	4 65	13 57
California	97	7 14	12 71	20 00	29 00	105	1 56	2 22	90	4 92	10 55
Oregon	109	5 75	8 14	13 07	19 28	112	1 66	2 18	104	3 10	6 03

EXTRACTS FROM CORRESPONDENCE.

STYLE OF FARMING IN NEW ENGLAND.—*Vermont.—Orleans:* Within one mile of my house are kept, by ten farmers, 150 cows, 20 horses, 1 yoke of oxen, 1 pair of yearling steers, about 25 yearling heifers, 15 calves, 20 sheep, and 20 yearling pigs. In other parts of the county the stock is largely cows, and butter is the main product. All of the hay and straw is kept in barns. The stables for cows are made quite warm, and the cows are tied in stanchions, allowing three feet to each cow. Water is usually brought under ground, in logs or lead pipes, to a trough in the yard. We estimate that an average cow requires two tons of hay to keep her through the winter. Snow came November 1, and we expect to feed until the 20th of May.

Connecticut.—Windham: It is the prevailing custom of our best farmers to turn off two crops of hogs in the year, the one in the spring and the other in the fall. We fatten them till they weigh 175 to 200 pounds and then sell. We invariably keep them penned up. If we do not grow corn and other feed, we buy it. By this means we make manure and increase the fertility of the land. We formerly did a great deal of work on farms with oxen, but now horses have taken their place to a great extent.

DISEASE AMONG CATTLE.—*Minnesota.—Martin:* Many yearling cattle have died lately. Some call the disease black-leg; others congestion of the lungs, or lung-fever. The blood seems to settle around the lungs and through the chest. Upon inquiry I cannot learn that any have died except where they have fed on wheat and oat chaff and where they have been poorly salted. They are first noticed as stupid, and die in a few hours.

Tennessee.—Grundy: Many cattle poisoned by seed of a pear-shaped fruit, upon a plant about two feet high. The first effect of the poison is excessive thirst, causing the animal to drink large quantities of water. It then puffs up, grows weak, lies down, and never rises again. It refuses fodder, and ceases to ruminate, dying in from one to four days. Stomach and entrails visibly "blighted."

Missouri.—Holt: About 150 cattle have died from too rapid feeding with soft corn.

VALUE OF POULTRY PRODUCTS.—*Pennsylvania.—Bucks:* One of my assistants wonders at the absence of poultry estimates in these reports. He justly remarks that if the extent of that interest were thoroughly examined into, it would be found a leading instead of a subordinate industry. Farmers through this county sell from $50 to $400 worth of poultry for each 100 acres of land. It is a source of much of the profit of farming. Many estimate it as second only to the dairy.

DOGS.—*Connecticut.—New London:* Dogs have done much mischief in killing and hurting sheep and lambs.

New York.—Wayne: We are nearly overrun with worthless dogs. They multiply rapidly.

New Jersey.—Burlington: For losses of sheep by dogs, $2,362 have been paid out, and one township has not yet reported. One township has paid $500, and nearly every township reports less than the actual number.

Pennsylvania.—Wyoming: This county is one of the best, if not *the* best, in the State in advantages for profitable sheep-raising. From any part droves of sheep or lambs can start in the evening and be in market the next morning, with no car-fare or middlemen to pay, and the farmers

realize for them the highest prices paid in the United States. But, owing to worthless dogs which roam through the fields and woods, killing the sheep and running them out of the pastures, we cannot make sheep-raising profitable. Out of the dog-tax, $901.40 have been paid for destruction by dogs, the owners of which were not able to pay damages; but for chasing and worrying the sheep, and driving them from field to field, which is the worst part, there is no pay. Besides, our orchards are becoming worse and worse for the want of sheep to destroy the insects by devouring the wind-fall apples, and rubbing and stamping around the trees. Sheep are much better for orchards than hogs. *Montour:* For some twelve years I have had no sheep killed by dogs, although exposed day and night in the fields. I think it is owing to my putting eight or ten bells on a flock of forty or fifty sheep. Neighbors who do not adopt this plan have sheep killed by dogs, but I have not had one attacked since I adopted it.

Maryland.—Baltimore: Sheep-husbandry could be made profitable, but the business will be prostrate as long as we have more worthless dogs than sheep.

Virginia.—Page: Considering the capital invested, sheep would be our most profitable stock were it not for the dogs; but unless some law is passed to protect sheep, we fear they will become extinct. The persons who are the least able to feed dogs always have the most of them. *Powhatan:* We have in the county a dog-law, now in force, which has reduced the number of dogs some 20 per cent. Sheep-husbandry has taken a new impetus. Within the last two months one farmer has introduced into the county 700 sheep from West Virginia. *Highland:* Sheep would be on the increase but for the dogs. The number annually killed would rather exceed than fall short of 1,200. *Sussex:* The number of sheep will continue to grow less until there are none left, unless some means can be devised to rid the community of dogs. It is thought that there are now in Sussex ten dogs for every sheep. Our State Legislature seems to be *afraid* of the dogs. Cannot Congress do something to help us? With the abatement of this nuisance sheep-husbandry would soon become a leading and one of the most profitable branches of industry in the county. Wool could be more cheaply raised here than cotton. *Prince William:* The dog-tax will not pay more than 10 per cent. on the loss of sheep by dogs. In Manassas Township seven farmers, on four square miles, lost, by dogs, during the fall and this winter, 165, or 60 per cent. of their whole number. *Augusta:* Since the adoption of the dog-law dogs are becoming scarce, and sheep increasing; think we will have plenty in a few years. *Rockbridge:* There has been such a falling off in sheep that they are scarcely worth reporting. Still, a great many have been killed by dogs, even among the small flocks. If a law for taxing dogs could be passed and carried out, ours would soon be a *wool-growing* county.

North Carolina.—Hertford: Sheep would do well, but for the multitude of dogs. As a general rule, the poorer the man, the more dogs around him; consequently, where the sheep once abounded they are rapidly disappearing. *Gaston:* Dogs have done very little damage the past four years, and sheep are fairly on the increase. *Haywood:* If the sheep destroyed by the two-legged dogs be counted, the number will go far above the estimate in the report.

Georgia.—Walker: Our farmers are turning attention to sheep-raising, which would be profitable if we had a good dog law. *Macon:* Sheep are decidedly on the increase, and we are making strenuous efforts to effect the enactment of a dog-law for their greater protection. *Gwinnett:*

Great complaint of the destruction of sheep by dogs. We hope to get a dog-law when the legislature convenes. *Carroll:* If there were some law to protect sheep-raisers from dogs, the business would be increased; but so long as every man is allowed to keep from five to ten half-starved curs, it is useless to begin.

Alabama.—Calhoun: Dogs destroyed sheep so extensively in years back that the people had almost quit raising them; but within the last two years many have commenced again on a small scale, keeping the few they have in pastures near home.

Mississippi.—Lauderdale: The dogs have killed sheep to such an extent that few farmers attempt to raise them. *Noxubee:* Owing to rotted-down inclosures, many sheep are lost by dogs and thieves. *Wayne:* Many sheep are killed by dogs.

Texas.—Titus: There is a great desire among farmers to raise sheep, but many are deterred on account of the worthless dogs with which the county is infested. *Williamson:* Sheep are better cared for than formerly, and the losses by dogs are much less.

Arkansas.—Independence: A law, recently enacted, imposing a tax on dogs, will encourage sheep-raising and prevent so much dog-raising, a business in which Arkansas excels. *Howard:* Very few sheep were killed by dogs in 1875, for the reason that they had killed nearly all in the county before that. *Benton:* Our last legislature passed a dog law, and sheep-raising now has some encouragement to go ahead. *Saint Francis:* There are in the county a great many more dogs than sheep; consequently, those who keep sheep are all the time annoyed by the worthless curs. *Crawford:* I have put the number killed by dogs at 1,500, and this is *low*. Properly speaking, there are no sheep-raisers here now, and those who keep a few cannot gain on their number; they diminish.

Tennessee.—Gibson: Owing to the ravages of dogs, sheep-raising has been almost entirely abandoned. *Roane:* A tax on dogs has diminished the number very much. *Grainger:* Sheep are more profitable than any other stock. We are trying a dog-law with excellent results, but it is feared that demagogues will take it from us. *McMinn:* The sheep killed by dogs were, in 1875, less by two-thirds than in previous years, owing to the tax, which caused many a dog to die. *Bedford:* We have more and better sheep than ever before—the result of a dog-law. In the county, in 1875, 5,000 dogs were assessed by me, and at least 3,000 were killed to avoid assessment. *Coffee:* Our last legislature passed a dog-law, which has done a great deal of good. There is now a growing disposition to go into sheep-husbandry. Last spring over 10,000 lambs were shipped from Nashville to Louisville, Kentucky.

West Virginia.—Jefferson: The interests of sheep-owners are now protected by a dog-law, which is being enforced right well. Sheep are increasing rapidly.

Kentucky.—Calloway: In my neighborhood a great many sheep have been killed by dogs, which seem to increase faster than the sheep. Not less than three or four to a family.

Indiana.—Shelby: The loss of sheep by dogs so discourages many farmers that they are disposing of entire flocks. *Jennings:* We have nearly abandoned sheep-raising, owing to dogs.

Illinois.—Saline: The falling off in sheep is owing to the fact that they have suffered badly from dogs. *Clay:* Sheep-husbandry declines, because of their destruction by dogs. *Pope:* Doubtless the dogs destroy, annually, 7 to 10 per cent. of the whole number of sheep.

Missouri.—Lincoln: In nearly every case the fine flocks have suf-

fered from dogs. The best breeds make the best mutton, judging from the canine selection and taste.

DISEASES AMONG HOGS.—*New Jersey.—Burlington:* Sickness, called cholera, has made havoc in many yards; some have lost as many as 90; others, nearly all they had.

Pennsylvania.—Montour: Some fine hogs have died of cholera.

Virginia.—Middlesex: At least one-tenth of the hogs have been destroyed by cholera, and it has not eased up yet. *Northampton:* The supply of hogs cut short by cholera. *Halifax:* Many hogs have died of cholera, and some of measles and quinsy.

North Carolina.—Cumberland: Different kinds of disease, all known as cholera, have been very fatal to hogs. Some farmers have lost all. Hogs that recover lose their bristles, and are nearly worthless. *Wilkes:* Hog-cholera has prevailed in some sections. *Camden:* Hogs are dying with something like quinsy. They are taken with a cough and swelling about the throat, and in a day or two are dead. *Wilson:* Many of the hogs died last fall. *Pitt:* A decided prospect that the county would be self-sustaining as to pork was blasted by a peculiar febrile disease, killing, regardless of age or condition, at least one-third in number. It is still prevailing, and not amenable to any treatment yet suggested. *Watauga:* In portions of the county hogs are dying of cholera; some farmers have lost nearly all. *Brunswick:* Many hogs have died of cholera, and the small pigs are killed by bears, foxes, and wild cats.

Georgia.—Coffee: Hogs have died rapidly with cholera. *Wilcox:* Hogs died to a considerable extent in the fall with cholera. *Gilmore:* Cholera among hogs in some sections.

Florida.—Fayette: Hogs in certain localities are dying from an unknown cause; 50 per cent. of the pigs sicken and die. *Gadsden:* The cholera destroyed one-third of the hogs. Commenced about the first of May and ceased about the first of July.

Alabama.—De Kalb: Cholera has made havoc among the hogs.

Louisiana.—Jackson: About 1,200 hogs died of cholera.

Texas.—Austin: Many hogs have died. *Upshur:* Last winter, disease nearly cleaned out the hogs from this county.

Arkansas.—Bradley: A disease has prevailed among the hogs, called cholera, but much unlike the disease so called in former days. They are taken with vomiting, and die in from one to four days. A few get well, from which the hair generally drops. *Jefferson:* Hogs under one year died the past summer and fall to a large extent.

Kentucky.—Edmondson: Cholera has prevailed in a part of the county since last September. *Logan:* Owing to a very short corn-crop in 1874, and no clover in the county in 1875, at least 20 per cent. of the hogs died of starvation during the year. There are fewer hogs in the county now than for many years. *Owsley:* Hogs have died off by disease until the farmers have become discouraged from raising them, and there are not enough to half supply the county for consumption. *Graves:* Hog-cholera has prevailed to some extent; about 10 per cent. have died. *Ohio:* The falling off in the number of hogs is owing to cholera.

Ohio.—Pickaway: The cholera has taken off quite a number of our hogs. *Licking:* Have lost some hogs by cholera.

Indiana.—Gibson: Since the cholera ceased hogs are doing well. *Decatur:* Cholera has prevailed to an alarming extent among the hogs, and greatly reduced the number of pigs. *Shelby:* Decrease in the percentage of hogs is caused by the ravages of cholera. *Warren:* Hog-cholera has prevailed in two townships. *Jennings:* Probably one-fourth of all the hogs have died of cholera. *Hamilton:* Hog-cholera visited our

county the past season, and was very fatal. It is now somewhat abated. *Washington:* About 10 per cent. of the hogs have died of cholera. *Clay:* The number of hogs has been steadily declining for three or four years, owing to the prevalence of cholera. *Brown:* Many hogs have died of cholera in portions of the county.

Illinois.—Saline: Cholera among the hogs has prevailed throughout the county to an alarming extent. *Tazewell:* Hog-cholera has prevailed to some extent; mostly confined to young hogs; very few fattening hogs have died. *Fulton:* The fatality, by cholera, among the pigs of last spring has been unusually large. *Scott:* Cholera has killed nearly all the hogs in the county. *Knox:* Hog-cholera very bad, and also a new disease in the form of colds, coughs, and lung difficulties.

Iowa.—Polk: Fully 25 per cent. of our hogs have died of the cholera, so called. *Harrison:* Many hogs dying of what is called cholera.

Missouri.—Carroll: The hog-cholera has been all the fall, and is now, very destructive, and there appears to be neither preventive nor remedy. *Nodaway:* Cholera, so called, which is nothing more than worms, has destroyed 20 per cent. of our hogs. They might have been saved by feeding, constantly, copperas and sulphur, alternately, at the rate of a table-spoonful to 8 hogs, every fourth day. This is a preventive. There is probably no cure. *Macon:* A great many hogs have died, and a great many are still dying, of some disease.

AGRICULTURAL PROSPECTS.—*New Hampshire.—Cheshire:* Hundreds of acres are worked over every year without manure, giving but small crops. This reduces the average of our highly-cultivated fields. *Carroll:* The farmer goes into winter-quarters with contentment, in spite of high taxes and scarce money, as the barns are well filled and stock in good condition.

Vermont.—Essex: November, a hard month, requiring liberal feeding.

Maryland.—Harford: Very few cattle fed; pasture still good.

Virginia.—Henrico: Our farmers do a vast deal of labor for nothing; they cultivate too much land in cereals and too little in forage-crops. A ton of hay is a small average here, yet it is worth more than 30 bushels of corn, with much less labor to make it. *Appomattox:* Freedmen generally imperfect cultivators when left to themselves; they are poorly furnished with implements, and are growing poorer.

North Carolinia.—Wayne: At the close of the year farmers feel disposed to allot less land for cotton, but when planting comes their resolves are forgotten. Land prepared with the same care for wheat as for cotton would yield over twenty bushels, besides a subsequent crop of turnips or pease, greatly improving the land and reducing the cost of labor. We need to get out of the ruts. *Nash:* More than usual of acres in winter-oats; more stock-hogs, sheep, and cattle; more economy in expense; more thorough manuring and more diversity of crops; more labor by the farmers and less hiring. *Camden:* Crops mostly average, but low prices discourage the farmer. *Beaufort:* Improved farms increasing.

South Carolina.—Clarendon: Much suffering must result from want of provisions. *Union:* Fine fall for harvesting. *Chesterfield:* Hard times the coming year.

Georgia.—Harris: Crops short, cotton low, and people in debt; condition worse than since the war. *Troup:* Great change for the better in farming.

Alabama.—Saint Clair: Better farming and better tools. *Henry:* People disposed to greater economy.

Louisiana.—Lafayette: Average yield of all crops low on account of bad cultivation.

Texas.—Washington: Everybody swears to go slow on the cotton question, but everybody plants largely and neglects other crops.

Tennessee.—Monroe: Fine breeds of cattle, sheep, and hogs being introduced, with better seeds and implements.

Kentucky.—Boyle: Scarcity and unreliability of labor causes a change from grain to grass. The fault lies in not stirring the ground to a sufficient depth; this is chargeable as much to the employer as to the laborer. *Pendleton:* Farm-products are not paying farmers much except hogs, which sell at $6.75 to $7 per cental gross at the pen.

Ohio.—Coshocton: Farmers generally in good spirits, being liberally rewarded by ruling prices and average yields, and having sustained no losses of stock during the year. *Belmont:* The past year has been the least prosperous for ten years; fruit a failure, wheat and hay half crops, and wool low.

Indiana.—Gibson: Plenty to eat, but money scarce.

California.—Sonoma: The coming season very promising.

CHUFA, OR EARTH ALMOND.

The Department has of late received many inquiries for seeds of the chufa, (*Cyperus esculenta,*) as well as requests for information as to its character and cultivation in this country. To meet these inquiries, the Department has ordered from France a supply of the seed for distribution.

The chufa is a perennial, indigenous in the south of Europe, growing in the form of a rush to the height of about 3 feet, producing small tubers about the size of an ordinary bean, called by the French *souchet comestible,* (rush-nut.) It was introduced into this country more than twenty years ago, and proved very prolific when planted in the light sandy soils of the Middle and Southern States, as also in richer soils.

It belongs to the same genus as the notorious wild "nut-grass," (*Cyperus repens,*) but does not spread like that pest of southern fields.

In taste, the tubers resemble a delicious chestnut or cocoanut, and, like them, may be eaten raw or cooked. After soaking in water twelve hours, they may be eaten as a sauce. Dr. C. T. Jackson, of Boston, Mass., analyzed them, and furnished the following result for the Agricultural Report of the Patent Office, 1857, page 166:

Water	15.50 per cent.
Fibrous matter	21.45 " "
Starch	27.00 " "
A peculiar sugar, like manna	12.25 " "
Wax	0.50 " "
Fat oil	16.65 " "
Mucilage, or gum, with a little albumen	6.65 " "
	100.00

Doctor Jackson further stated: "When these tubers are beaten to a paste and mixed with water a remarkable emulsion is formed, which, after straining, resembles milk in appearance. The fat at length rises to the surface and looks like cream, while most of the starch subsides to the bottom of the vessel; but enough still remains suspended to give the emulsion the appearance of thin or skim milk. Thus mingled with water, the most nutritive ingredients of this plant may be taken as a drink. It is much used in this manner by the Spaniards, and I have no doubt will be so employed in this country. This emulsion may be sweetened and flavored, so as to make it very agreeable to the taste."

A writer in the Agricultural Report of the Patent-Office for 1855, p. 259, wrote that he had raised a patch of them at Pittsburgh, Pa., each plant of which had produced over 100 tubers; and that when pounded with sugar the mixture is equal in every respect to the emulsion of almonds. They are chiefly used in Spain and other hot European climates, for making an orgeat, (*orchata de chufas*,) a delightful and refreshing drink.

Mr. A. Peabody stated, in the "Southern Plantation," that, some twenty years previously, he had received five tubers from the Patent-Office, and had raised them ever since, a single nut producing a quart of tubers in ordinary soil. On land that will produce 20 bushels of corn, 100 bushels of chufas can easily be raised—the chufas being double the value of corn, as they require neither digging nor storing, and do not rot in the ground, being uninjured by cold or frost. Hogs will dig them as they want them, and fowls will soon learn to scratch them out of the ground, they growing sufficiently near the surface. He also says that poultry fattened on them excel in delicacy of flavor the celery-fed canvas-back duck.

According to Mr. Peabody, the chufa delights in a light sandy soil, and may be planted at any time (in the South) from December to April. He planted them in shallow furrows, two feet apart; single tubers one foot apart in the furrows, and "covered with a board"—(probably during winter.) They vegetated the first warm weather, and when weeds appeared, required only "a sweep" to be run between the rows. The green spikes soon multiplied, and eventually met across the rows, each spire having a nut at the bottom. He found the roasted chufa superior to chocolate as a breakfast beverage.

Mr. Peabody concludes his article thus: "When we take into consideration all its good qualities—its fattening properties, its easy culture, its hardiness, and the fact that hogs will dig them as they want them without wasting them—we wonder that they are not more extensively raised by our farmers. It is the most valuable seed the Patent-Office ever sent out, and is destined to prove a great boon to the South."

Another writer recommends that in the Middle States the chufa be planted in June or July, in hills two feet apart each way, ten or twelve tubers to each hill, and the tubers placed four to six inches apart. When the first shoots appear, if there is no rain the ground should be watered. No cultivation is needed except to keep them clear of weeds. They blossom in September, and the flowers may be pinched off to increase the size of the tubers, which mature about October, when they may be dug and stored.

The chufa is not only a fattening food for swine and fowls, as it is much relished by them; but an excellent oil may be expressed from it, after which the cake will still be valuable for feeding animals, and will increase the quantity and richness of the milk of cows, if fed to them.

CHEMICAL MEMORANDA.

BY WILLIAM MCMURTRIE, CHEMIST.

AMERICAN OPIUM.—The cultivation of poppy in this country for the production of opium does not seem to have received the attention it deserves. The efforts of this Department to arouse an interest in this particular by distribution of seeds of the best varieties to its more progressive correspondents, have, however, been occasionally rewarded with reports of experiments of an encouraging character, and we take pleasure in publishing the following notes of an experiment furnished by Mr. Charles Patton, Germantown, Tenn.

I take great pleasure in reporting the result of my experiment in making opium from the seeds of white poppy received early this spring from the Agricultural Department; and to substantiate in part my report, I have forwarded to the Department, by mail, a package containing the principal part of the opium produced, which you will please dispose of as suits your pleasure.

Having no other guide upon the subject than the communication in the Agricultural Report for 1870, one-tenth of an acre was measured off to receive the seeds. The plot had been cropped with turnips the previous fall, manured with sheep-droppings. On the 15th of April the ground was plowed, harrowed, and dragged very fine, and the seed drilled in rows, 18 inches apart. May 3 the hand-cultivator was run between the rows and the plants thinned to a stand, 6 to 9 inches between plants. The cultivator was run once more, on the 24th of May, and this was all the cultivation required. On the 15th of June the plants commenced blooming, and two days thereafter the first opium was gathered. The implement used for scarifying was the blade of my pen-knife. One or two horizontal incisions around the capsule were in most cases sufficient to extract the opium. I find a greater loss of juice by the up and down incision than from the horizontal. An instrument making two or three cuts horizontally at one operation would prevent all loss, as each would be able to sustain the weight of the liquid until hardened by exposure. By the present mode of extracting, I think not less than ten to twelve per cent. of the opium is lost. The plants ceased blooming about the first of July, and on the 4th the crop was finished, making eighty-one days from the time of planting.

The sample sent by Mr. Patton was reserved for exhibition and analysis. It was of fine homogeneous texture when dry, of dark brown color, was perfectly free from seeds, stems, or other extraneous matters, and weighed nearly five ounces.

The portion of the sample taken for analysis was found to contain:

	Per cent
Moisture	15.24
Morphine	7.10

Comparing this result with those obtained from analyses of other varieties of American opium, or even of foreign products, proves it to be of fair quality, and from its appearance it is better than the average opium found in the markets.

It is about equal to good Egyptian and East Indian products.*

"POISONED" SOILS OF TEXAS.—During the summer of 1872 the Department had occasion to investigate the cause of a property peculiar to certain soils of Texas and some of the neighboring States, and, without personal examination, from chemical analysis of a sample sent us, concluded it was due to a deficiency in under-drainage, a conclusion since supported by a letter from Mr. A. J. Graves, of that State.

Our attention was again called to this matter by Hon. R. Q. Mills, of the fourth congressional district, who communicated a letter from Mr. W. T. M. Dickson, of which the following is an extract:

About two years ago last month I forwarded to the Department of Agriculture, under instructions from the Commissioner of Agriculture, four packages of black

(*Compare report of this Department for 1873, p. 174.)

soil, carefully labeled, wrapped, and mailed, for analysis. The object of the analysis, as explained in the accompanying letter, was to ascertain the cause and remedy of that peculiar property in our soils which is fatal to cotton and most garden-vegetables, to *bois-d'arc* and all our cultivated trees except the peach and most of the native trees. The cereals, however, wheat, corn, oats, barley, rye, &c., appear to be injured, but not destroyed by it.

It will be seen that these conditions are precisely similar to those described in the report referred to in the following communication addressed to Mr. Mills by the Commissioner.

DEPARTMENT OF AGRICULTURE,
Washington, December 14, 1875.

SIR: Your note of the 13th instant, inclosing letter from Mr. Dickson, is at hand.

The difficulty existing in the soils of Texas, referred to by your correspondent, was fully discussed in the Annual Report of this Department for 1872, and the deductions there made have been fully corroborated by Mr. A. G. Graves, jr., of McKinney, Collins County, Texas. The position taken in the article in question, without personal examination of the locality, was, that the difficulty was due to a deficiency in underdrainage; that the water of the subsoil was held in place, thus precluding the admission of oxygen to the soil, and preventing the decomposition of the organic matter holding the mineral elements of plant-food in insoluble combinations, not capable of being absorbed and assimilated by the plants in growth. This will explain why cereals and other plants supplied with superficial roots are uninjured, they being able to derive their nourishment from the surface-soil. But after plants having long tap-roots have reached that stage of development in which their roots penetrate the subsoil where this unfavorable condition exists, the subsoil, saturated to its fullest extent with stagnant water, is unable to give up the nutriment it contains, an unhealthy condition for the plants exists, and they naturally die from starvation and bad treatment.

Mr. Graves found, in preparing to set a fence through a piece of ground where, from the cause in question, a hedge of osage-orange, or *bois-d'arc*, had become diseased and had died, that when holes were made to enter the subsoil of that portion where the destruction had been greatest and most marked, water rose in them, filling them to the same level. The description of his experience as detailed in his letter is as follows:

"I had occasion to run a line of fence across one of these spots where an osage-orange hedge had died out, a distance of about 50 yards. In boring post-holes for fence to close this gap, it was necessary to bore one at each end, just outside of the spot. The grade of the land was an inclination of about one foot in thirty. It being rather wet, water rose in the holes very quickly along through the spot, decreasing in depth somewhat near the ends, while in the holes just outside the spot it scarcely ran in at all."

This proves that where such a condition exists, the line of division between the surface-soil and subsoil is undulating, and the subsoil being of close texture, and impenetrable to water, underground ponds, if the term be allowable, are formed. When the roots of plants reach the level of the water and pass beneath it, destruction takes place.

Application of lime, as recommended in the article referred to, will doubtless have a good effect as a remedy for this difficulty, but the best way of removing it effectually will probably be found in underdrainage. From information we have received, this may be somewhat difficult in some localities, and may, in some cases, be impracticable. It has been suggested that, since below this hard stratum of subsoil may be found a stratum of loose sand or gravel, it will be possible to remove the water from these spots by piercing holes through the hard subsoil to the loose stratum below, and making such openings about the center of each spot. Whether this will be practicable, can be determined only by experiment. It will, however, be worth a trial. Should your correspondent undertake such experiment, it would afford us great pleasure to be advised of the result. If successful, it will be of great value to all planters in the vicinity of the mouth of the Mississippi.

Our failure to examine the samples of soils when received was due to the fact that they were unaccompanied with a letter of instructions with regard to the locality from which they were taken, and the existing conditions. This is always indispensable in such investigations.

Very respectfully,

FREDERICK WATTS,
Commissioner of Agriculture.

Hon. R. Q. MILLS,
House of Representatives.

FIXATION OF ATMOSPHERIC NITROGEN IN THE SOIL.—In some of the late numbers of "*Comptes Rendus de l'Academie des Sciences*," Mons.

P. Truchot has published a series of papers upon the chemical properties of soils, and in the first paper he seeks to show from the results of analyses of a number of soils that the amount of nitrogen appropriated by the soil from the atmosphere bears a direct relation to the amount of carbon present in the ulmic compounds it contains. That nitrogen is taken up during the decomposition of organic matters in presence of alkalies has been proven by different investigators by direct experiment, but Mons. Truchot endeavors to find proof of this fact by analyses of the soils themselves. The following table shows the results of his analyses referred to 100 grammes of soil:

A.—*Meadow-lands not specially manured, but pastured with cattle.*

No.	Soil of—	Nature of soil.	Carbon.	Nitrogen.	Remarks.
			Grammes.	*Grammes.*	
1	Royat	Granitic	6.120	0.445	
2	Clermont	Alluvial	4.920	0.452	Pastured.
3	Theix	Granitic	14.880	0.686	Not pastured.
4	Romagnat	Marly	3.500	0.420	Pastured.
5	Besse	Volcanic	11.880	0.940	Do.
6	....do	....do	12.900	0.760	Not pastured.
7	....do	....do	10.200	0.743	Not very fertile.
8	....do	....do	11.040	0.708	Pastured.
9	Puy de Dôme	....do	10.050	0.732	Fertile.
10	....do	....do	2.340	0.244	Sterile.

B.—*Cultivated lands which have received ordinary manures.*

No.	Soil of—	Nature of soil.	Carbon.	Nitrogen.	Remarks.
			Grammes.	*Grammes.*	
11	Aigueperse	Granitic	5.400	0.120	
12	Saint Bennet	Alluvial	1.800	0.194	
13	Bourgnon	Granitic	2.460	0.184	Strongly manured.
14	Chéry	....do	0.980	0.032	
15	Allagnat	Volcanic	1.764	0.082	
16	....do	Granitic	0.651	0.046	

Mons. Truchot says that many other analyses gave similar results. He has, therefore, evidently made selections from the results obtained to support his idea. Let us arrange his chosen results in the order of the increase of carbon in the soil, giving the figures alone.

For uncultivated soils.		*For cultivated soils.*	
Carbon.	Nitrogen.	Carbon.	Nitrogen.
2.34	0.244	0.651	0.046
3.5	0.420	0.98	0.032
4.92	0.452	0.764	0.082
6.12	0.445	1.8	0.194
10.05	0.732	2.46	0.184
10.2	0.743	5.4	0.120
11.04	0.708		
11.88	0.940		
12.90	0.760		
14.88	0.686		

We see that there is in many cases for an increase of carbon an increase of nitrogen, but this is not the case in all the soils cited, nor do we find any direct ratio of increase. The soils of Besse, he says, merit particular attention, from the fact that at the very great elevation at which they are found, over three thousand feet above sea-level, with no

possibility of obtaining nitrogen from any external source other than the atmosphere, they produce sufficient herbage for pasturage of large herds of cattle throughout six months of the year, and contain a higher percentage of nitrogen than could by any means be supplied by the excreta of the cattle pastured there.

It might be objected that the nitrogen could be supplied by atmospheric ammonia produced at lower altitudes and carried up by the moisture that goes to form clouds; but this objection will not hold in view of the fact that the soil of Theix, found at an elevation of only 1,500 feet, contains nearly as much nitrogen as the soil of Besse. The other instances cited support this fact, and while we by no means dispute the agency of ulmic compounds in the appropriation of atmospheric nitrogen by the soil, and must acknowledge the value of Mons. Truchot's results, showing in some cases an increase of nitrogen with increase of carbon, we cannot fully agree with him in concluding from these results that "the amount of nitrogen contained in soils is in direct proportion to the quantity of carbon in the ulmic compounds they contain."

PHOSPHORIC ACID AS AN INDICATOR OF THE FERTILITY OF SOILS.—Mons. P. Truchot, in another paper, has discussed this idea in an exceedingly interesting manner, giving results of a series of analyses of soils of Auvergne, made with especial reference to it. Basing his estimations upon the fact that the three mineral ingredients of soils resulting from the decomposition of rocks which are of most value as fertilizers are lime, phosphoric acid, and potash, he obtained the results given below.

Granitic soils.—The granites of Puy-de-Dôme are almost entirely deficient in lime, and are poor in phosphoric acid, potash alone being present in notable quantity. The following are the results of estimations made upon the more or less decomposed friable rocks which form the subsoil of the cultivated soil, after having formed the soil itself:

	Lime.	Potash.	Phosphoric acid.
	Per cent.	*Per cent.*	*Per cent.*
1. Granite from Bourgnon, (Canton de St. Dier)	0.040	0.160	0.015
2. Granite from Trezioux, (Canton de St. Dier)	0.099	0.332	0.048
3. Granite from Montaigut	Traces..	0.345	Traces.
4. Granite from Theix, (Canton de Clermont)	Traces..	0.371	0.037
5. Gneiss from Chéry, (Canton de Sauxillanges)	Traces..	0.115	Traces.

The soils resulting from the decomposition of these granites, or similar granitic rocks, are only slightly fertile, and require lime and phosphatic manures. The mean of analyses of twenty-three of these soils gives: Lime, 0.039; potash, 0.210; phosphoric acid, 0.058.

Volcanic soils.—It is quite different with volcanic soils, whether formed from basaltic rocks or modern lavas. The decomposition of rocks containing pyroxene and labradorite furnishes lime, so that such soils, athough classified with the preceding as sandy, do not generally require an addition of lime. They contain a tolerably large amount of potash, and especially a large proportion of phosphoric acid.

The following are the quantities of phosphoric acid in several volcanic rocks:

1. Domite, from Puy-de-Dome	0.096
2. Domite, from Buy-de-Dome	0.109
3. Trachyte, from Mont Doré	0.217
4. Basaltic scoria, (Pont des Eaux)	0.512
5. Pozzolana, from Gravenoir	0.624
6. Lava, from Gravenoir	0.715
7. Lava, from Gravenoir, partly decomposed	0.742

The following are analyses of two volcanic soils:

	Lime, per cent.	Potash, per cent.	Phosphoric acid, per cent.
1. From Beaumont	1.6	0.226	0.403
2. From Aubière	2.6	0.160	0.304

These soils are very fertile in spite of a slight depth of the arable stratum. Judging from these figures, the author is led to conclude, with M. P. de Gasparin, that phosphoric acid, rather than potash, is the measure of fertility of a soil.

Soil of Limogne.—This soil is a rich alluvium, derived from the decomposition of all the rocks of Auvergne, the mud of ancient lakes, and even mineral-waters. The following are the results of three analyses of specimens of this soil taken from different localities:

		Mont Dessir.	Sarlieve.	Pont du château.
Physical analysis.	Stones	2.2	.....	16.
	Sand	42.	4.	69.70
	Clay and fine sand	55.8	96.	14.30
		100.	100.	100.00
Chemical analysis.	Phosphoric acid	0.296	0.329	0.416
	Potash	0.548	0.385	0.280
	Lime	9.970	8.893	3.853
	Magnesia	1.850	0.005	0.762
	Carbonate of lithia	0.085	0.132	.....
	Oxide of iron	13.1	7.3	15.330
	Chlorine	0.069	0.066	.....
	Carbon	1.145	1.033	.....
	Nitrogen	0.310	0.453	.....

The thickness of the arable layer of this soil, often exceeding several meters, its looseness, as indicated by the physical analysis, &c., tend to make it very fertile; but if the proportion of phosphoric acid be considered, it will be observed that it is three times as great as that which characterizes the best soils. The black color and exceptional fertility of this alluvium would lead one to classify it with garden-mold, and to suppose it very rich in humus. But its amount of carbon derived from organic matters is small, and many less fertile soils contain much more.

The action of rocks in regard to fertility may be appreciated by examining the composition of the subterranean waters coming from them, and which are more or less efficacious when employed in irrigation. Some waters in the department of Puy-de-Dome have the reputation of increasing the fertility of the soils upon which they are used, while others are known to be almost without effect. As might be predicted, the first come from volcanic districts, the second from granitic. The following analyses confirm this supposition:

Quantities in one liter.

	Silica.	Lime.	Potash.	Soda.	Phosphoric acid.
FROM GRANITIC ROCKS.	*Milligrams.*	*Milligrams.*	*Milligrams.*	*Milligrams.*	*Milligrams.*
1	40	Traces	2.7	2.0	Traces.
2	9	2.4	2.5	3.6	Traces.
3	29	25.	1.9	6.4	Traces.
4	28.5	13.5	8.2	13.5	Traces.
FROM VOLCANIC ROCKS.					
5	33	Traces	1.4	.....	0.873
6	25	Traces	1.2	4.9	1.080
7	17	Traces	1.5	5.0	0.850

Thus the granitic waters, while quite rich in potash, do not contain any sensible amount of phosphoric acid. The volcanic waters, on the other hand, cantain less potash, but about one milligram of phosphoric acid per liter. The author concludes, from these analyses and comparisons, that phosphoric acid is the principal element of the fertility of the soils mentioned, and that the volcanic soils owe their superiority in that respect, in a great measure, to the notable amount of that acid which they contain, which is rendered more easily soluble and assimilable by the presence of lime.

NITROGEN AND AMMONIA IN BEETS.—Messrs. Champion & Pellet have published the results of an investigation upon the subject of the percentage of nitrogen and ammonia contained in beet-roots, from which they conclude:

1. The soil and the percentage of nitrogen in the fertilizer employed being the same, the beets produced contain a larger percentage of nitrogen, according to the increase of the amount of sugar present.

2. With like quantities of sugar present in the beets, the nitrogen increases with the increase of nitrogen in the fertilizer employed.

3. The percentage of ammonia in the roots decreases with the increase of sugar.

The authors further state that these conclusions also hold good for sugar-cane.

IRRIGATION.—The question of irrigation has lately received some valuable attention at the hands of Mons. A. Le Play, who has made the utilization of drainage-waters from springs and the superficial waters accumulated during heavy rain-storms a subject of special study. His object was, not only to utilize the water for the purposes of irrigation, but also to prevent excavation of ravines on inclined surfaces by removal of large quantities of soil by the immense accumulation of water during the storms.

For this latter purpose he proposes to construct inexpensive trenches at regular intervals along the side of the hill, to collect the water at a given surface, to prevent an accumulation forming heavy streams, and to carry the water thus collected to the meadows requiring irrigation. The soil of the hill-sides, being composed principally of disintegrating and decomposing rocks, generally contains considerable quantities of lime, potassa, phosphoric acid, and nitrogen, and these matters, by the drainage and surface waters, may be distributed at will upon parts most needing them, while, if they be allowed to follow natural channels, they must be in great part lost in the lands of the immediate vicinity.

Monsieur Le Play claims, as an advantage of his mode of irrigation, that it avoids the possibility of close soils, the surfaces of which are considerably inclined, being cut up by large streams of water consequent upon heavy rains, and that therefore, independently of its importance in irrigating meadows, it very materially facilitates the cultivation of mountainous regions.

He conducted a series of analyses, the results of which, though forming a sound basis for his important deductions, have a local importance, and are therefore not suitable for abstraction. They show, however, that the richness of the waters thus collected varies according to the season, the inclination of the soil, the conditions of culture, and especially according to the conditions governing the system of manuring the fields through which they have to pass. He also found that the proportion of material of value as plant-food annually removed by water collected in these trenches, was far greater than could possibly be removed by the growth of different varieties of vegetation.

Cultivated varieties, (New Jersey.)

These facts appear very significant, and if some of our mountain-farmers will pay some attention to them, they will doubtless find the application of this system of great practical value, and will find in it a means of preventing the more valuable constituents of their soils being carried off by mountain-streams to the valleys below.

MICROSCOPIC OBSERVATIONS.

By Thomas Taylor, Microscopist.

[Continued from the October Report for 1875, page 445.]

Several members of the New Jersey Cranberry Association have expressed, by letters to this Department, a desire to know whether the color of the water on cranberry-plantations can be safely relied on as a test of the quality of peat-bottoms. Mr. James Fenwick, of New Lisbon, one of the most noted cranberry-growers of the State, writes to the Commissioner of Agriculture as follows:

I fear it may be thought by some that the statement which I made at the Cranberry Growers' Association, that the water in my bog was highly colored, and yet for twenty years I had never had any rot, was designed to disparage the opinion of the microscopist of the Department of Agriculture, in regard to that disease; but it was not so intended. The association appeared to have the impression that the colored water was the cause of the rot; an old idea started by some one who had white water on his plantation, to the injury of those who had colored water. I wish to say that the labors of the microscopist in this investigation have been fully appreciated by me, and that personally I am thankful to the Department for them; but believing that the cause of the rot in cranberries in our pine region is generally owing to drought and high temperature, or flooding with heated or dead water, I am not disposed to change my views in this respect, and am still of opinion that his ideas as to the cause of the rot in Dr. Merriman's bog is correct, and that we are indebted to him for it. His recommendation to keep the water near the surface in irrigation is reasonable, because in drought poisonous substances, consisting of sulphureted hydrogen and organic acids, rise from below, and injure the plants. He has advised the use of lime.

Professor Mapes and many others have recommended lime slacked with salt, which substances produce, in the presence of decaying organic matters, furnishing carbonic acid, chloride of calcium and carbonate of soda in a cheap form. Would not these substances be better than lime alone? And, in case of irrigation, would not a slow passage of water through the soil be preferable to flooding? Thus, suppose two ditches be made two rods apart; let the water be kept in them at a proper height to keep the ground moist, say one foot from the surface; put another parallel ditch between them for a feeder, and keep the water up to the surface of the soil; then there will be a motion of water through the soil toward the ditches on either side. In my judgment, this would be a great improvement on the present practice. It would supply moisture to the soil and have a tendency to carry off poisonous gases.

If Mr. Fenwick will review my papers published in the Department Monthly Reports for October, 1874, and January and October, 1875, he will find that my views are in accord with his as regards the causes which operate to produce cranberry-rot. I also consider that his views relating to drainage and liming are worthy of experiment, and I hope that he will assist in giving an early trial of them, and report the results to this Department.

The color of water or bog-land cannot be relied on as a test of the quality of peat-muck, inasmuch as color may be derived from a variety of causes. Bicarbonate of iron is soluble in water, producing a brown color. The coloring-matter of peat is also very soluble in solutions of soda, potash, and ammonia, forming deep, brown-colored solutions, and the salts of these alkalies have also a slightly soluble effect; while with caustic lime the coloring-matter is precipitated, giving colorless solu-

tions, but the presence of sulphureted hydrogen in the soil will generally indicate when fermentation is in progress in the soil.

The composition of peat or mold varies with the nature of the plants which produce it. Plants containing tannin give an acid mold, while those which have no tannin form a mild mold more favorable to cultivation. The organic principles which are found in mold are ulmic acid, free or combined, in the latter case forming soluble ulmates, which are absorbed by plants during vegetation, and a black substance soluble in water, and called extract of mold, to which humus owes its color.

Although extract of mold is soluble in water, it should not be confounded with ulmic acid. It acts, during vegetation, by aiding in rapidly heating the soil which contains it, by absorbing moisture, by appropriating the elements of the atmosphere and of manures to form ammoniacal compounds, the nitrogen of which is easily assimilated by plants; and finally by giving rise to carbonic acid, which is dissolved by water.

In this condition, carbonic acid favors the earliest development of plants before the growth of the leaves; it dissolves the otherwise insoluble phosphates, it converts the insoluble earthy carbonates into soluble bicarbonates, thus enabling them to furnish to plants the lime and magnesia which they need.

ULMIC COMPOUNDS, OR PEATY MATTER.—Braconnet was the first to observe that in treating wood with potash a black acid, comparable to humus, was formed which he called ulmic acid. M. Chevreul also found that under the influence of the alkali the oxygen of the air is rapidly absorbed. Certain trees, and especially elms, exude a brown liquid which, according to the observations of Vauquelin and Klaproth, is an ulmate of potash and ammonia. The action of potash upon wood has been examined by M. Péligot. It results from the observations of this chemist that when a mixture of sawdust and potash is heated to about 300°, water, hydrogen, oily products, and wood-spirit are disengaged, besides which, carbonate, oxalate, formiate, and ulmate of potash are formed. Ulmic acid thus obtained will be yellow if the temperature at which the reaction takes place is not too high; but when the mixture is heated without precaution the acid is black. The final result of the decomposition of woody material by potash is carbon, and if the temperature were sufficiently high, hydrate of potash, acting as an oxidizing agent, might even cause the combustion of the carbon, in which case hydrogen would be disengaged. The yellow acid has been called *lignhumic acid;* the black acid, called *lignulmic acid*, forms with bases salts which have the general formula MO, C^{54} H^{28} O^{6}.

Lignulmic acid is brown, almost black; it is insoluble in water, but dissolves in concentrated sulphuric acid. It is soluble in alcohol; with alkalies it forms salts of a deep-brown color, which are uncrystallizable. The other lignulmates are insoluble, and may be obtained by double decomposition. M. Malogati obtained a black crystallized acid by heating on the water-bath for several hours a solution of sugar containing a small quantity of nitric acid.

M. Mulder has published a work on these black acids, of the principal results of which the following is a summary:

When a solution of 22 parts of sugar and 1 of sulphuric acid in 40 parts of water is heated to about 80°, a brown deposit is soon formed, which M. Mulder considers an ulmate of ulmine. This substance, treated with potash, yields ulmate of potash and leaves a deposit of ulmine, the composition of which is C^{40} H^{16} O^{14}. Ulmate of potash treated with

hydrochloric acids gives a brown, flaky precipitate of ulmic acid, which, being dried at 195°, is found to have the formula $C^{40}\ H^{14}\ O^{12}$.

When the mixture of sugar, water, and sulphuric acid is heated in a vacuum instead of under atmospheric pressure, a new compound is formed, which M. Mulder calls humate of humine. By acting upon this substance with a dilute solution of potash he separated the neutral body humine, which has for its formula $C^{40}\ H^{15}\ O^{15}$. Humine is evidently derived from ulmine by oxidation, one equivalent of hydrogen having been taken from ulmine and replaced in humine by one equivalent of oxygen. Anhydrous humic acid has for its formula $C^{40}\ H^{12}\ O^{12}$.

Under the influence of an excess of acid the preceding substances are changed into a black compound, insoluble in alkalies, the formula of which is $C^{24}\ H^{13}\ O^{9}$.

The compounds above described, treated with a current of chlorine in the presence of water, form a chloridized acid which is represented by the formula $C^{32}\ H^{12}\ ClO^{16}\ HO$, which M. Mulder named chlorohumic acid. Humate of ammonia, treated with chlorine, yields a compound still more highly chloridized, having the formula $C^{32}\ H^{12}\ Cl^{2}\ O^{18}$.

According to M. Mulder, the black acids which are found in *peat*, in *rotten moss*, and in *arable soils*, are identical with ulmic and humic acids, which, in those circumstances, are combined with variable quantities of ammonia.

M. Mulder extracted from mold two acids in particular—*crenic* ($C^{24}\ H^{12}\ O^{16}$) acid and apocrenic ($C^{48}\ H^{12}\ O^{24}$) acid—which had been discovered by Berzelius in the waters of Porta, in Sweden, and in the ochreous deposits which furnish ferruginous waters.

Tobacco which has undergone fermentation for eighteen months—that used for making snuff, for example—contains a considerable quantity of a black acid which has not as yet been sufficiently studied, but which strongly resembles humic and ulmic acids in many of its properties.

We see then, to sum up, that these black substances result from the decomposition of neutral substances under the influence of acids and alkalies, or by the action of the *air* or *heat*. They may be *neutral* or *acid*. They frequently contain hydrogen and oxygen in the proportion in which those elements unite to form water. Those of them which combine with bases are to be considered as very feeble acids which always form, with alkaline bases, colored and uncrystallizable salts. These acids, in their general properties, present a certain analogy to the resins.

By acting on glucose with ammonia, either at 100° and at the ordinary pressure, or in closed tubes and at different temperatures, M. P. Thenard obtained brown substances soluble in water and in alkaline solutions, and which contain at least 10 per cent. *nitrogen*.

Dextrine, gum, starch, and cotton, treated with ammonia, gave M. Schützenberger analogous results. Thus gum, heated with ammonia in a closed tube for forty-eight hours, gave a residue containing from 2.5 per cent. to 3 per cent. nitrogen. Dextrine, heated under the same conditions for one hundred and sixty-eight hours, gave a substance which contained 11.5 per cent. nitrogen.—Peluze and Frémy.

As the successful cultivation of the cranberry depends much on the condition of the peaty matters of the bog-land used, it is imperative on those who desire to become successful growers to make themselves thoroughly acquainted with the chemical properties of peat. Many suppose that it is necessary to have the roots of the cranberry-plant imbedded in peat, losing sight of the fact that soluble and colorless fertilizing compounds are formed from the decomposition of woody or peaty matters which are easily conveyed through sand to the roots.

From the numerous experiments and observations I have made, I am convinced that the roots are injured by direct contact with decomposing, or even well-decomposed peat. Fresh, moist peat, pressed on litmus paper, gives at once the reaction of an acid, even when a solution of the same will scarcely indicate its presence. Roots growing in peat have always a blackened color, although well washed, indicating the presence of an oxidizing agent; but when growing in clear sand over peat-bottoms or in gray moss, they are of a whitish or pale-yellowish color, indicating the absence of acid, and also showing a healthy growth.

Some specimens of native peat, analyzed in the laboratory of the Department, have given a larger per cent. of ammonia than some of commercial poudrette; and it is probable that the ammonia, disengaged from well-decomposed peat, existed in the form of a salt, and not as nitrogen in an albumenide. In the form of a soluble salt, it would come in contact with the roots by the capillary action of the sand. It is in this way that peat-bottoms have their value under sand. A microscopic examination of the dark-coloring matter found on the roots, after all the mechanical coloring matters had been removed, showed that their surface was chemically changed, that is, carbonized.

Cranberry illustrations.—Figures 1, 2, 3, 4, 5, and 6 represent the leading types of cranberries cultivated in New Jersey, which are known by the following names, viz: 1, the bell; 2, the cherry; 3, the bugle; 4, the red early bell, from Cape Cod, as found growing in New Jersey; 5, the cheese berry; 6, a modification of the bugle; 7, roots of the healthy vine, intermingled with moss.

Insects injurious to cranberry-culture.—The following letter relating to in sectsinjurious to cranberry-culture is written by the secretary of the New Jersey Cranberry Association, at the request of this Department:

TRENTON, N. J., *January* 25, 1876.

DEAR SIR: I subjoin a few facts, drawn from experience and observation, concerning the insect-enemies common to the cranberry. Those with which we have had special experience are the grasshopper, cricket, vine-worm, and berry-worm. We have succeeded in destroying these worms by thorough plowing. On a portion of the park cranberry low lands they at one time became very numerous in spite of the ordinary winter plowing, but by removing the water and exposing the lands for a few weeks to the rays of the sun in April, and then again submerging them, the worms were completely destroyed. When water is not at command for flowing we think they may be controlled by night-fires on the borders of the bogs at the period when the moth is out. Many moths are destroyed by the flames, and more are attracted away from the plantation by the light that do not find their way back.

Grasshoppers and crickets have given us the most trouble. Their eggs being impervious to water cannot be destroyed by winter flowing. If they could be submerged at the period of hatching we have no doubt that they would succumb, but the hatching occurring at a period when the vines are in bloom and setting with fruit, flowing cannot be employed without loss of the crop. Poultry of all kinds we have found very beneficial in keeping the grasshoppers in subjection; but we have found no animal sufficiently sharp-eyed to capture the hiding cricket except the Guinea fowl. Both the grasshopper and the cricket are fearfully destructive, as the former attacks the berry when very small, and the latter eats only the seeds at the time of ripening.

If you can give us any assistance by way of remedy for these pests we shall be greatly obliged.

Respectfully,

A. J. RIDER.

Hon. FREDK. WATTS,
Commissioner of Agriculture.

PENICILLIUM GLAUCUM.—Under the head of microscopic investigations will appear, from time to time, in the monthly reports of the Department, a series of illustrations of finely-executed engravings, representing the most important types of cryptogamic plants and including edible

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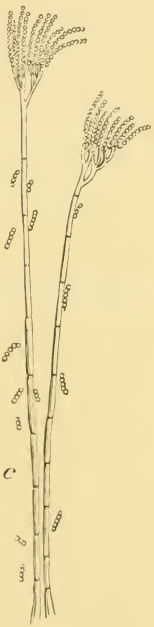

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and poisonous mushrooms. About 500 highly-executed colored drawings have been prepared for the International Exhibition, under the supervision of some of the most noted cryptogamists of Europe and America, from which collection specimens will be selected for publication.

We make our first selection, blue-mold, (*Penicillium glacum*, Grev.,) from a class of common molds which are frequently found on moldy bread and other articles of food, and appear of a greenish or blue color. This genus is supposed to have intimate relations to fermentation; *a*, represents the appearance of the fungus to the naked eye, on a piece of bread; *b*, tuft enlarged; *c*, threads enlarged 420 diameters; *d*, apex x 620; *e*, chain of spores further magnified; *f*, spores germinating.

The drawing is after an original, by M. C. Cooke.

FACTS FROM VARIOUS SOURCES.

CONNECTICUT AGRICULTURAL EXPERIMENT STATION.—The Wesleyan University, of Middletown, Connecticut, has tendered the use of its grounds, cabinets, and labratories for the use of this new institution, of which Dr. Atwater, the distinguished professor of chemistry of the university, acts as director. Dr. W. C. Tilden, late of this Department, is the acting chemist, with two assistants. The State appropriates annually $2,800, and the American Agriculturist enough to pay the balance of salaries and expenses. Dr. Atwater gives his services as director without charge. At a late joint meeting at the station, of the State Board of Agriculture and the Farmers' General Committee, Dr. Atwater presented statistics from seventy European agricultural stations, showing that not a dozen of them were better equipped for work than was the Connecticut station. The work of the station has been commenced, and already some of its valuable features have been developed. Numerous analyses of fertilizers have been made, one of which shows that the article in question, though sold with strong recommendations, contained 1,300 pounds of sand, gravel, and other worthless material, to the ton. Analyses of general utility are to be made gratis; those of private interest at moderate charges.

NEW JERSEY CRANBERRY ASSOCIATION.—At a recent meeting of this association, Mr. N. R. French reported the statistics of cranberry production as follows:

In round numbers I think the area under cranberry culture in New Jersey at the present time is 5,000 acres, and the cost thereof at the fruit-bearing age of the vine (three years) $1,750,000. New England and New York—judging from their crops, aggregate about the same acreage, at probably about the same cost. Wisconsin, Minnesota, Indiana and Michigan, probably have 5,000 acres in cranberry vines, either partially or wholly cultivated, but the cost at the fruit-bearing age is presumably less than half that of the same area in the Atlantic States. We may say then that this country has 15,000 acres in cranberry culture, at a cost valuation of $4,375,000. The estimate crop of the last four years is as follows:

	1872.	1873.	1874.	1875.
	Bushels.	*Bushels.*	*Bushels.*	*Bushels.*
Cape Cod and adjacent islands	80, 000	80, 000	70, 000	50, 000
Massachusetts, Rhode Island, and Connecticut	20, 000	25, 000	35, 000	25, 000
New Jersey	100, 000	110, 000	90, 000	90, 000
Wisconsin, Minnesota, Indiana, and Michigan	135, 000	60, 000	50, 000	40, 000
New York			5, 000	5, 000
Totals	275, 000	275, 000	250, 000	210, 000

TRAINING OF HORSES.—The following letter was received from a regular and valued correspondent of this Department. It inculcates valuable lessons in the rearing and training of young horses, the proper mode of feeding, and systematic gentleness in handling and teaching. The value of the horse depends so much upon his early training that I give place to this letter because of the valuable lessons it teaches:—[*Commissioner of Agriculture.*

HACIENDA SALUDA,
Greenville County, S. C., December 24, 1875.

SIR: On the 11th December last I purchased two more colts born 4th and 7th May, 1874—both from the same horse—their mothers sound brood-mares of this county. The colts were weaned at seven months old, wintered on corn-fodder and clover-hay, with two quarts per day of corn-meal, moistened with warm water and a little salt. They ran out all winter in a 20-acre hilly lot of ground, with steep gravelly paths to water. At night they nestled together on a warm littered-stable wooden floor, coats cleaned and feet trimmed.

In March, as soon as they began to get a little pasture, they were haltered and tied up in their stalls. In June they were bridled, surcingled, and cruppered. In two days running loose the bit worked in the mouth and crupper at the root of the tail in such a way as to make them hold up their heads and do all the kicking natural to youth and inexperience. They were then learned to stand tied in this way for three hours each day for a week, another week with wagon-harness, collars, breeching, and chain-traces dangling about their hind legs sufficient to teach them patience.

In July they were driven double up and down hill; then hitched single to a horse-rake, pulling hay together; then to a little cart, one ahead of the other, hauling light loads of hay to the barn, at which work they were prepared for the road as a tandem team; then put to a small garden-plow, single and double. Sweating cleansed their bowels, gave them a fine appetite, and made them grow rapidly in size and strength.

In August they were taught to shake hands before going to supper, by offering one fore foot. Driven double out on the road to visit a steam-sawmill, heard the noise of machinery, and became familiar with the whistle of the locomotive. During September they carried sixty-pound boys every day for two hours up and down the road inside the front gate in a slow walk, then in a fast walk up and down hill, then in a slow trot and fast trot on a level; this kept them a little thin in the hot season, but they were growing at the rate of half an inch per month, having reached the height of 4 feet 9¼ inches, keeping nearly the same size.

In October they were allowed a vacation of two weeks, in a third crop of clover, a foot high, with an additional allowance of salt to prevent slobbering; before being set free in the mornings, they were requested to bow their heads to the ground in supplication, which they soon learned to do with profound understanding. They had not been in clover long before they filled, and lay down on their mother earth and went to sleep.

In the last week in October they were hitched to the Baltimore wagon, and driven eight miles, working well up and down hill, and on a level showed how well they had been trained to trot by the boys. They were now turned on Kentucky blue-grass a half a foot high. At eighteen months old they were hitched to the high Greenville road-wagon, and visited the city, to and fro fourteen miles. On this drive they showed the result of a home education, crossing streams and bridges and passing strangers with a grace and beauty equal to colts of their age of any other country.

Amazon (named after the South American valley) is the favorite.

Tecla (named after the fair maid of Iconium, referred to in Apocryphal New Testament, who was persecuted without mercy by magistrates of antiquity,) is the pet. She shows pluck on the road, and traveled the fourteenth mile with much spirit, though she may not prove so fast as Amazon.

The importation and employment of jacks injures and weakens the race of horses. A young horse, with elder brothers and sisters mules, is often abused for stupidity, or a wild vicious character which turns his heels against mankind. The well-trained, pure blooded horse, is now so valuable, and the mule comparatively so cheap, that the horse is being destroyed by the jackass.

Very respectfully,

LARDNER GIBBON.

OUR SILK MANUFACTURE.—From returns received by the Silk Association of America from the silk manufactories of the country, the following statistics have been compiled. The total value of our domestic manufacture, during 1874, was $20,082,482, viz: tram and organzine, 375,659 pounds, $2,911,055; spun silk, 140,000 pounds, $800,000;

fringe-silk, 18,845 pounds, $109,270; floss-silk, 6,300 pounds, $43,000; sewing-silk, 82,857 pounds, $917,809; machine-twist, 414,285 pounds, $4,848,839; dress-silks, $1,400,000; millinery and neck-tie silks, $1,163,961; handkerchiefs, $313,315; foulards, $500,000; ribbons, $2,776,836; braids and bindings, $308,790; laces, $103,000; veils and veiling, $33,706; military trimmings, $68,000; upholstery trimmings, $340,000; ladies' dress trimmings, $3,444,700. In this manufacture were consumed 897,946 pounds of reeled silks, worth $8,829,973; 140,000 pounds of spun silks, worth $800,000, making 1,037,946 pounds of silk thread, valued at $9,629,973. Of this amount 497,142 pounds, worth $5,766,648, were consumed in sewings and twist, leaving but 540,804 pounds, worth $3,863,325, for woven fabrics. The total amount paid for wages was $4,497,319, making an outlay for labor and raw material of $14,127,092, leaving a balance of $5,955,390 for profits and expenses of administration. The total amount of capital invested was $14,708,184, which, divided among 180 establishments, gives an average of $81,716. The average of annual products was $111,569. The total number of hands employed was 14,479, averaging 80 to each establishment; of this number 4,086 were males above sixteen; 1,048 males under sixteen; 6,853 females above sixteen, and 2,487 females below that age.

Of the different branches of this industry, thrown and spun silks embrace 26 establishments, half being in New Jersey, with machinery of 1,003 horse-power, driving 129,178 throwing-spindles; the number of hands employed was 4,062; amount paid for wages, $945,710; capital invested, $4,252,152; total product, $3,863,325, including tram and organzine, $2,911,055, spun silk, $800,000, fringe-silk, $109,270, and floss-silk, $43,000; total weight of product, 540,804 pounds. It is noticeable that the two establishments of Connecticut produce about two-thirds of the aggregate of the 13 establishments in New Jersey, with less than a third of the spindles and two-thirds of the horse-power; but the capital invested in the Connecticut factories is $1,767,300, against $1,577,070 in those of New Jersey; New York has 4 factories, Pennsylvania 6, and California 1; but these are on a smaller scale.

Sewing-silks and machine-twist occupy 42 factories with machinery of 605 horse-power, driving 39,665 spindles; number of hands employed, 3,212; aggregate of wages, $793,391; capital invested, $3,586,996; total value of products, $5,776,648, including sewing-silks, $917,809, and twist, $4,848,839; total weight of goods produced, 497,142 pounds. Massachusetts, with 7 factories, produces about two-fifths of this aggregate, $2,072,163, and has the largest amount of capital invested, $1,258,290, as well as the largest number of hands employed, 1,146. Connecticut, with 19 establishments, employs 1,051 hands, and produces $1,904,885 from an invested capital of $1,153,433. New Jersey has 6 establishments; New York 5; Pennsylvania 2; California, New Hampshire, and Vermont 1 each.

Broad goods and ribbons employ 42 factories with machinery of 355 horse-power, driving 1,189 power-looms and 496 ribbon power-looms. There are also 779 hand-looms, and the average number of shuttles of each establishment is 7,935; number of hands employed, 4,092; total of wages, $1,201,579; capital invested, $2,836,696; total production, $6,154,313, including dress-silks, $1,400,000; millinery and neck-tie silks, $1,163,961; handkerchiefs, $313,516; foulards, $500,000; ribbons, $2,776,836. New Jersey, with 21 factories, produces nearly half of this aggregate, $2,987,467, employing 2,255 hands, and $1,492,584 of capital, and paying for labor $616,588. New York, with 11 establishments, and Connecticut, with 2, produce each about half as much as New Jersey

Pennsylvania has 6 establishments, producing millinery and neck-tie goods and ribbons. Massachusetts and Kansas have 1 each, fabricating only ribbons.

Forty firms are engaged in dyeing either their own products or those of others. They have $386,840 invested in dye-works, employ 360 men, pay $205,719 for labor, and dyed 1,037,946 pounds of silk during the year.

In the manufacture of laces and braids, 92 firms are employed, 56 in New York and 14 in Pennsylvania, with 392 power-looms, 728 hand-looms, 45,148 braiding-spindles, 180 chenille-spindles, 287 cord-spinning wheels, and 50 lace-machines; number of hands employed, 2,753, (two-thirds females;) wages paid, $1,350,920; capital invested, $3,645,500; total product, $4,298,196, including laces, $103,000, (all in New York;) braids and binding, $308,790, (all in New Jersey and Connecticut;) veils and veilings, $33,706, (all in New Jersey;) military trimmings, $68,000, (all in Pennsylvania;) upholstery trimmings, $340,000; ladies' dress-trimmings, $3,444,700.

The 180 establishments were scattered through 13 States, of which New Hampshire, Maryland, Vermont, Missouri, and Kansas, had but 1 each; Illinois 2; Ohio and California 3 each; Massachusetts 11; Connecticut 21; Pennsylvania 23; New Jersey 42; New York 70. New Jersey has the largest amount of capital invested—$4,193,942, or over a third of the whole—and reports the largest product, $6,097,692, nearly a third of the whole; she employs, also, over a third of the laborers—5,714. Her 42 establishments average $145,183 of manufactured products, $99,858 of capital invested, and 129 employés. Her enterprise is mostly directed to thrown and spun silks, broad goods, ribbons, laces, braids, and trimmings.

Connecticut ranks next in the extent of production and capital embarked. Her 21 establishments show the largest averages reported, viz: Capital, $186,381, value of products, $241,710, employés, 126. Her chief enterprise embraces thrown and spun silks, sewing-silks, twist, broad goods, and ribbons.

New York, with the largest number of establishments, ranks only third in capital and production; her 70 factories average $48,168 in capital invested, $64,238 in annual production, and 48 hands employed; 56 of her establishments manufacture laces, braids, and trimmings, in which branch she takes the lead, and produces more than half of the whole.

The 23 factories of Pennsylvania, employed mostly in the fabrication of laces, braids, trimmings, broad goods, and ribbons, average $66,846 of capital, $81,597 of products, and 67 employés. Massachusetts takes the lead in sewing-silk and machine-twist, producing about two-fifths of the whole; her 11 establishments average $122,981 of capital, $197,151 of products, and 113 employés. Ohio manufactures only ladies' dress trimmings and upholstery trimmings; her 3 establishments average $14,000 of capital and $20,000 of products, employing altogether 100 hands. California has 3 factories, producing tram, machine-twist, and ladies' dress and upholstery trimmings; they average $54,000 of capital, and $36,766 of products, employing together 100 hands. Illinois has 2 establishments engaged in manufacturing ladies' dress and upholstery trimmings; together they report $32,500 of capital and $50,000 of products, and employ 35 hands. New Hampshire has 1 factory, producing machine-twist and sewing-silk to the amount of $44,000, employing a capital of $27,000 and 19 hands. Maryland, with 1 factory, employing $30,000 capital and 25 hands, produces $35,000 worth

of ladies' dress trimmings. Vermont has 1 manufactory of machine-twist, with $14,200 capital and 8 hands, yielding $15,000. One firm in Missouri manufactures ladies' dress trimmings and upholstery trimmings to the extent of $15,000, with $10,500 capital and 13 hands. Finally, one establishment in Kansas weaves $7,500 worth of ribbons, with a capital of $10,000 and 6 hands.

The weekly wages of male employés range about as follows: mill men and boys, from $5.75 @ $8 in New Jersey, to $6 @ $12 in Connecticut; cleaners, from $1.80 in California to $5 in Connecticut; weavers, $12 to 18, (the highest rate only in Connecticut;) dyers from $12 @ $15 in New Jersey and Pennsylvania, to $16 @ $25 in New York, (California $24 in gold;) stringers, from $12 to $18, (highest rate only in California;) laborers, from $8 @ $10 in Pennsylvania, to $10 @ $12 in New York; lace-machine men, (only employed in New York,) $12 to $30. Female wages range as follows: danters, from $5.50 @ $6.50 in Pennsylvania, to $9 in California; winders and doublers, $4.50 to $10; cleaners, $1.80 to $5; reelers and quill-fillers, $4 to $7; spoolers, $6.50 to $8; weavers, $7 to $12; tassel-makers, $4 to $7.50. The hours of labor are 60 per week. In many instances operatives of special skill will make much more than the above, especially soft-silk winders, warpers, and weavers who work by the piece or pound; such frequently earn $12 to $15 per week, while male weavers often reach $20, and passementerie-workers $30; the best silk-finishers reach $36.

The reports of the Bureau of Statistics of the Treasury show the following imports of raw silk by fiscal years: 1870–'71, 1,100,281 pounds, worth $5,739,592; 1871–'72, 1,063,809 pounds, worth $5,625,620; 1872–'73, 1,159,420 pounds, worth $6,460,621; 1873–'74, 794,837 pounds, worth $3,854,008; 1874–'75, 1,101,681 pounds, worth $4,504,306. The imports of the calendar year of 1874 were 806,774 pounds, valued at $3,826,905, against 831,728 pounds, worth $4,267,243, imported in 1873. Over 99 per cent. of these goods were entered at New York and San Francisco. The report of the Silk Association embraces a paper showing that the raw silk-trade of 1874 was marked by full crops, low prices, and large consumption by manufacturers. In the face of a decreasing import this can be explained only on the supposition of an increased home-production. China, now happily freed from her devastating rebellion, has increased her annual product and export. The report, however, publishes facts showing that the Chinese article has suffered a continued adulteration and deterioration. In response to the demands of foreign consuls the Chinese government issued a proclamation calling upon the officials of the "silk-district" to see that due care be exercised in the selection of fiber for export, and that energetic measures be taken for its improvement. In Japan, of late years, the raw-silk trade has been nearly undermined and demoralized by the extraordinary foreign demand for silk-worms' eggs. This caused the increase of worms beyond the power of the rearers to properly care for them. A great degeneracy of the next generation was the natural consequence, involving a similar degeneracy in the cocoons. But these results have produced a reaction in the business, and now more attention is given to the breeding of sound, healthy worms. Machinery is also superseding hand-work in reeling, producing more even and stronger fiber with fewer breaks. The entire Japanese product of raw silk in 1874 was about 3,000,000 pounds. The silk produced in spring is stronger and less liable to break, but that of summer is of brighter color; a little inferior silk is produced in the fall. From facts presented by the Japanese vice-consul at New York, it is expected that the Japanese silk will become as good as that of any other

country for American manufacture, when the Japanese understand the requirements of our market. We demand the best and strongest fiber. In Europe the crop was good notwithstanding the yield of cocoons from imported Japanese eggs was poor. The Bengal silks were inferior.

The prices of raw silk ruled lower than for twenty years, shrinking from 30 to 45 per cent. within two years. These low prices have been maintained in spite of increased consumption and the rapid decrease of manufacturers' stocks.

The aggregate annual values of silk manufactures imported at New York during the last sixteen calendar years were as follows: 1859, $31,877,863; 1860, $34,320,331; 1861, $12,298,863; 1862, $10,942,938; 1863, $14,761,186; 1864, $14,621,202; 1865, $18,293,693; 1866, $22,962,864; 1867, $16,434,524; 1868, $18,903,232; 1869, $22,064,312; 1870, $26,731,275; 1871, $33,899,710; 1872, $32,677,749; 1873, $24,379,322; 1874, $23,292,551. From 92 to 95 per cent. of the manufactured-silk imports of the whole country are received at New York. These figures represent the foreign (gold) cost of the fabrics.

ANGORA MANUFACTURES IN CALIFORNIA.—California, in pursuance of a characteristic fashion of doing what cannot be done elsewhere, has not only persisted in keeping considerable flocks of Angora goats, but multiplies their numbers and utilizes the fleece. There have been placed in the Museum of this Department some specimens of dressed skin with fleece intact, of divers colors and great beauty, such as are used for fancy robes, rugs, mats, fur gauntlets, and for other purposes. These gloves are very strong, durable, warm, and showy. The leather is also used in strings for belt-lacing, and appears from its great strength to be very suitable for such use. This is the work of the Angora Robe and Glove Company, located at San José, and demonstrates the availability of Angora products for successful manufacture into articles of comfort and utility. Their gloves, unlike those of buckskin, are dressed with the grain left on. Mr. Frank Leavis, the secretary of the company, is a part owner of a flock of six hundred ewes which were sheared last spring. In one county, Monterey, there are no less than twenty thousand returned by the assessors, and they constitute a portion of the stock of twenty-eight other counties.

CHEESE IN MINNESOTA.—The statistics of the Bigelow Cheese Factory, in Noble County, Minnesota, reported to this Department for 1875. are as follows: Number of pounds of cheese manufactured, 15,520; average value per pound, 12½ cents. The factory was in operation four months, during which time it received the milk of eighty cows. The average number of pounds of cheese per cow was 194, amounting in value to $24. Our correspondent in Stearns County also reports that the farmers are turning their attention to cheese-making, and that a factory for that purpose has been established in the county the past season.

PEELER COTTON.—A correspondent in Drew County, Arkansas, reports that from a package of seed received from this Department he had grown enough to sow about an acre of this variety of cotton, last spring. He sold the product of lint at 14½ cents per pound, "while other cotton, raised by its side, handled with the same care, and sold at the same time, brought only 12 cents per pound." He has carefully saved the seed of this crop, some of which he will distribute among neighbors, and plant the remainder for further testing its comparative merits.

FRUIT IN MICHIGAN.—The quantities of fruit reported as shipped by

rail and water from Saint Joseph and Benton Harbor, the past season, were as follows:

	Saint Joseph.	Benton Harbor.
Apples, barrels	18,773	48,831
Apples, baskets	10,648	.....
Pears, baskets	12,918	.....
Fruit—peaches, plums, cherries, grapes, quinces, &c., baskets	35,294	47,785
Strawberries, crates, (one-half bushel)	130,092	.....
Berries, crates	38,248	2,937
Preserved fruits, barrels	.....	292

"DESICCATION OF FRUITS AND VEGETABLES."—In the article under this head in the volume of Monthly Reports for 1875, the statement, on page 508, that "letters-patent were granted to A. J. Reynolds, of Baltimore," should read "to A. J. Reynolds, of Chicago."

RENEWED IMMIGRATION INTO KANSAS.—A correspondent in McPherson County reports that the abundant crops of this season "have caused immigration to start up again." He states that Russian immigrants are coming into that vicinity and buying up all the railroad and school lands in the market. As a consequence, the locality is becoming thickly settled.

PROGRESSIVE FARMING.—A correspondent in Ingham County, Michigan, reports a growing conviction in that section that good farming, and only that, is profitable. The breeding of fine sheep, cattle, and farm-horses is receiving increased attention, and unusual exertions are being made to introduce the best labor-saving machines and implements.

BLUE-GRASS.—Our correspondent in Prairie County, Arkansas, reports that Kentucky blue-grass was brought into that county by the Army, and has since been spreading all through it, though very little has as yet been sown. "It is rapidly running out the wild grasses, with the exception, perhaps, of wild clover, of which there are two varieties." He is of opinion that, for all purposes, it is superior to every other grass in the county, though timothy, red-top, orchard-grass, and clover are cultivated, and successfully, by those who have the requisite knowledge for right treatment.

INCREASING PRODUCTION OF SORGHUM IN GEORGIA.—The State department of agriculture at Atlanta reports that the yield of sorghum this year will average in the State 73 gallons per acre, and the product will be 323 per cent. greater than last year. This is owing to a greatly increased acreage and to a very favorable season, particularly in Upper Georgia, where the culture is rapidly extending. The area reported in 1874 was 5,134 acres, and the average yield 67 gallons per acre. This gives a product of 343,978 gallons. An increase of 323 per cent. on this gives 1,455,027 gallons. The average price per gallon is 66 cents; the estimated cost of production per gallon 28 cents; making the gross returns per acre $48.18, and the net $27.74. That is a return of very nearly 136 per cent. on the investment in fertilization, seed, labor, &c. But it is presumed that the estimated cost of production does not take into account interest on the value of land, and its relative conditions before and after producing the crop. At the above estimates, the gross returns for the crop would amount to $960,317, and the net $536,910.

AGRICULTURE IN DOUGLAS, COLORADO.—A correspondent in this county reports that "the grasshoppers made a clean sweep of everything," except potatoes, which were an extra crop. During a residence of fifteen years he has never known such a failure, and he predicts that "a great many will have hard work to pull through till another crop." On the other hand, the loss of crops is in part compensated for by an unusually good market for cattle. Nearly all beef-cattle had been sold for Chicago market previous to November 13. At that date, also, grass was unusually good, and there was more than an average prospect that stock would winter well.

BROOM-CORN.—It is but a very few years since the importance of the extensive cultivation of broom-corn has attracted the attention of either the farmer or manufacturer; but now in the Northern, Western, and Middle States it has grown into an important industry; and there is no reason why the Southern planter should not turn his attention to the same subject, and thereby awaken another manufacturing occupation among his people. There is no climate in the United States in which broom-corn will not grow with more or less success; and the mode of its cultivation does not materially differ from that of the ordinary corn or maize. And, like all other grain, its successful production is dependent upon the quality of the soil and the care with which the land is cultivated.

For broom-corn the land should be plowed in the fall. This attains two objects: the frosts of winter ameliorate and make friable the soil; and the work is then done, and will not be liable to the delay of planting early in the spring. This is particularly necessary in the Northern and Middle States, where spring-sowing is often delayed by cold rains. If the ground be well and deeply plowed in the fall, it will supersede the necessity of plowing it again in the spring. The ground may be then well harrowed, rolled, and scored out three feet one way and two the other. This is assuming that the ground is in good, fertile condition. If it be not, then it should be made so before plowing in the fall, by the application of barn-yard manure. Land cannot be made too rich for corn. Scoring the land out both ways enables the farmer to work it both ways by cultivators. If the seed be dropped with a drill, then it need not be scored. About three quarts of seed will plant an acre. As soon as the corn is seen above the ground, the working to keep down the weeds should be commenced, and it must be kept clean throughout the season.

Broom-corn will grow from eight to twelve feet high, and its brush should be two feet long. This, however, is dependent in a great degree upon the quality of the soil and the care with which it is cultivated. After the corn is grown to full size, the top is bent down at a point about one foot below the brush. This is for the purpose of preventing too much spreading; and it should be so bent that it may be as little exposed to the sun as possible, in order to preserve its color. Whether this operation of bending down the top be done before or after the ripening of the seed, must be made to depend upon whether it be most desirable to perfectly ripen the seed or secure the best quality of brush. The plant being ripe and properly dry, the brush is to be cut off and hauled to the barn, and the seed taken off either by a hackle or other machinery.

The character of broom-corn has, of late years, been much improved in length and stiffness, and persons desirous of raising it should pay much attention to the character of the seed. The brush for several years back has been worth in the market from six to twelve cents a pound, and the seed is worth about as much as corn for the feed of cattle.

There are large manufactories of clothes and sweeping brooms in New York and Massachusetts, and the product of the broom-corn is always a marketable article. Some estimate may be made of the profit arising from the cultivation of broom-corn, from the reports made by the farmers of Massachusetts and New York to their respective agricultural societies, as the same are published in their annual transactions.

The value of the crop is reported by the Massachusetts Agricultural Society as follows:

1,159 lbs. of brush, at 7 cents		$81 13
88 bushels of seed, at 45 cents		39 60
		120 72
Expenses:		
Manure	$10 00	
Plowing and planting	3 00	
Cultivating, harvesting, and taking of seed	18 00	
Interest on land	9 00	
		40 00
Net profit on one acre		80 72

PURIFICATION OF SEWAGE.—Dr. Carpenter, in a paper read before the British "Association of Medical Officers of Health," states that infiltration of sewage through soil will eliminate all organic matter, and perfectly purify it. But the power of the soil is limited. It becomes saturated, and, instead of purifying the sewage, pollutes it still further by infusing the organic *débris* left by previous infiltrations. But if the filter is changed and the soil allowed to sun-dry and come in contact with fresh air, the organic *débris* itself is oxidized and transformed into harmless salts, which, on subsequently passing the sewage through the filter, will be carried off, leaving the filter itself free from its previous contamination. This is the principle on which rests the new process of downward, intermittent filtration. These salts are carried off into the sea, and consequently lost to agriculture.

To prevent this waste it is proposed to take up these organic *débris* in the filtering soil by vegetation. Instead of the chemical power of the atmosphere, the vital power of the plant should be brought into requisition to remove this refuse matter, and to bring it back by its circuitous process into the soil. In 1868 the speaker had showed how the rootlets of rye-grass seized upon the organic elements of the sewage, without reducing them to chemical salts, and immediately utilized them in plant-growth. He maintained, contrary to common opinion, that it was not necessary that the organic refuse should be reduced to inorganic elements prior to reabsorption in vegetation. He cites, in support of his position, the experiments of Dr. Sanderson, and the declaration of Dr. Hooker, of the Royal Gardens at Kew, before the British Association, at its late session in Belfast, that "plants can and do assimilate animal matter without that animal matter being first resolved into its ultimate elements."

Dr. Carpenter claims to have established the capacity of the protoplasm of rye-grass, as existing in the minute spongioles of the root, to absorb and assimilate organic matter without first decomposing it into its inorganic elements. At the extreme end of the rootlet, the root-cap, as it is called, consists of cells which attract this organic matter, and which, after having passed the nitrogenous elements to the vascular system of the plant, become saturated with the residuary oxygen or carbonic acid and separate from the plant, their work being done. Animal manure, especially that derived from carnivorous or omnivorous animals, embraces two classes of matter; first, that in which all vitality has been destroyed,

and which reverts to the inanimate compounds which the chemist can reproduce in his laboratory; secondly, that which contains granules or germs with a dormant or potential vitality of some sort. The latter is called, by Dr. Beale, "living matter," and requires a continuous heat of 212° Fah. for its destruction. These are the germs which, if admitted into the animal organism, reproduce their kind, and by their organic action disturb the normal relations of the animal system producing disease. If, now, it can be shown that vegetation arrests these mischievous germs or granules, a sanitary expedient of immense value has been developed. Dr. Carpenter cites Dr. Sanderson and Charles Darwin in proof of the actual absorption of this organic matter by the *Drosera*, and claims the same in behalf of the rye-grass. A field of thin grass deprived of its accustomed sewage for three or four days, shows a vast mass of tangled rootlets covered with hairs. As a stream of sewage is turned upon the latter they will exhibit, under the microscope, a marvelous activity. They extend their fibrillæ to reach the advancing tide. Immediately a liquid, which is not sewage, rises in the parenchyma of the plant.

A serious question has been raised, as to whether the absorption of injurious matter by the earth as a filter finally disposes of it, or only holds it in reserve for future injury. Dr. C. thinks that all possible danger from this source can be removed by this absorptive power of vegetation, so far as sewage is concerned. Plants will extract the nitrogenous elements of organic matter, and thus deprive it of all vitality. Not a single granule can escape this action, provided the soil is not already saturated with sewage. Rye-grass sown in wet sand, without contact with water containing nitrogenous matter, will grow to a certain size, and stop when it has used up all the nourishing matter contained in the seed. Upon the application of water, charged with fresh solutions of organic matter, the plant again begins to grow. If organic solutions be placed in sand in which there is no absorbing vegetable, such as rye-grass, it will become putrid. These facts Dr. C. claims to have established by decisive experiment.

In regard to the healthfulness of plants raised from sewage, for human consumption, Dr. C. admits that an excess of sewage injures plants, but contends that some plants can absorb it in greater proportion than others. For instance, Italian rye-grass will take up 2.33 times as much nitrogenized matter as meadow-grass. An unskillful experimenter, on the discovery of this fact, concluded that this excess was unassimilated nitrogen, or sewage pure and simple. But as it is impossible for either animal or vegetable organism to absorb organic materials without changes necessary to assimilation, such conclusions are not the result of competent knowledge of the subject. Albumen and ammonia, for instance, cannot pass through the vital processes without undergoing a radical change. The rye-grass, with its greater assimilating power, can dispose of an increased quantity of nitrogen and render it available and safe for animal nutrition. Rye-grass produces more meat and more milk than any other, because it contains more nitrogen, and leaves more sugar in the dried plant. Thousands of tons fertilized by sewage are now consumed by farm-animals in England with great relish and a marked preference over ordinary meadow-grasses. The ease with which cattle brought up on sewage-farms withstand epizootic attacks shows that their nutriment is not of such a character as to impair their vital energy. Dr. C. cites the Beddington farm of 500 acres, 480 of which are more or less under irrigation, and 280 acres constantly since 1860. The sewage of over 50,000 persons has been constantly supplied in all

seasons, and its effluent stream is received by the river Wandle, which bears it through several large estates, the proprietors of which, men of wealth and intelligence, would be quick to detect and prompt to remove any nuisance inflicted upon them, having on four different occasions enjoined the Croydon board of health from creating nuisances. But in the case of the effluent water of the Beddington farm they have found no grounds for complaint.

The farm belongs to the Croydon Board of Health, which has but limited financial means to make it efficient as a sewage-farm. The district of Croydon for many years has shown a clean bill of health, the larger portion of the people living in villages within half a mile of the farm, yet the death-rate is about 1½ per cent, while the birth-rate is more than double. The death-rate might be lowered still further by proper sanitary measures, abating several local nuisances not connected with sewage, such as foul wells, cesspools, &c. Dr. Carpenter claims that the utilization of sewage at Beddington has improved the health of the district. Very little of typhoid fever or other blood-poisoning disease is noted. He does not consider the effluent water as potable, but contends that it may be admitted to a water-course without any injury either to human residents or to the fish in the waters. The commissioners in charge of rivers allow any water to go into a running stream which does not contain more than two parts by weight of organic carbon, or thirty parts of organic nitrogen, in each 100.000 parts of water. The effluent water of Beddington, by careful analysis, falls within these official limits, and is even more pure than that which is supplied from the Thames for the people of London to drink. Beddington farm, with very inefficient management, returns a gross product of £20 per acre, being mostly grass. It has greatly cheapened both milk and meat in the local markets.

Dr. Voelcker, while questioning some of Dr. Carpenter's theories, and insisting that organic matter must be reduced to the mineral condition before it can be perfectly assimilable by vegetation, confirms his statements of the Beddington sewage-farm from personal inspection. Sewage grass is richer in nitrogen than ordinary grass, but it is also more watery. It is very useful for milch-cows. Dr. Carpenter rejoined that the rye-grass on the Beddington farm was mixed with other kinds of food correcting its watery tendencies, and that this was the reason of the superior character of the milk produced.

An English sewage-farm.—Lord Warwick's farm of 400 acres receives the whole sewage of the borough of Leamington, with that of the suburban parishes of Milverton and Lillington, amounting on the whole to a million gallons per day. The soil is a rich loam, overlying a gravelly subsoil. The sewage is pumped through an iron main, 2¼ miles long, to a height of 132 feet above the farm, which insures its easy distribution. Eight hydrants regulate the flow and terra-cotta pipes carry the liquid to different fields, where it is distributed by trenches, which are dammed at different points by movable sluices. This arrangement has been in operation for five years, yet no complaint of nuisance has yet been heard. Lord Warwick pays £450 per annum for the material, and his contract was to run thirty years from the beginning. The borough pays the expense of pumping. The sewage is applied to almost all kinds of crops. The soil is generally well saturated before seeding. Great care is exercised to prevent the liquid from coming in contact with green leaves, which, in such case, become blackened and destroyed. The effluent water after examination at several points was pronounced by the health authorities remarkably pure, being especially free from fungoid

growths. The works originally cost £23,057. The annual installment of interest is £1,563.15, which is met by the boroughs of Leamington and the parishes of Milverton and Lillington, in proportion to their ratable value. The working expenses amounted last year to £1,046, less the £450 paid by Lord Warwick.

MILK TRANSMITS INFECTION.—The Sanitary Record (English) states that at Jarrow 34 cases of typhoid fever suddenly broke out in a limited district, in twenty different families, the cases being mostly confined to children. The houses, with two exceptions, were clean and well supplied with pure water. It was discovered that all the families received their milk from the same farm, which was at once visited. Six of the farmer's family were down with the fever. The water used in the dairy was from a well close to a cesspit, and evidently contaminated by soakage, as it became putrid in two days after drawing from the well. The dairy was also used as a wash-house and the linen of the sick persons of the family were washed in it. The person who milked the cows was in constant attendance upon the sick. The nuisance was promptly detected by the health-officer and immediately abated.

BRITISH IMPORTS OF BREADSTUFFS.—The official report of exports and imports of the United Kingdom during 1874 and 1875, gives the following figures in regard to the importation of breadstuffs:

	Quantities.		Values.	
	1874.	1875.	1874.	1875.
Wheat:				
Russia ..... cwts....	5, 714, 488	9, 995, 295	£3, 180, 723	£5, 153, 132
Denmark ..... do....	167, 286	493, 599	103, 956	270, 984
Germany ..... do....	3, 053, 680	5, 615, 984	2, 017, 623	3, 149, 174
France ..... do....	300, 299	1, 296, 920	163, 835	698, 752
Austrian territories ..... do....	2, 814	18, 564	1, 932	10, 013
Turkey, including Moldavia and Wallachia. do....	659, 676	1, 308, 137	364, 082	608, 402
Egypt ..... do....	293, 880	2, 093, 853	172, 242	1, 028, 122
United States ..... do....	23, 048, 552	23, 463, 910	14, 178, 791	12, 400, 875
Chili ..... do....	1, 925, 334	900, 880	1, 180, 455	506, 698
British North America ..... do....	3, 807, 174	3, 604, 610	2, 238, 167	1, 966, 994
Other countries ..... do....	2, 506, 277	2, 994, 641	1, 599, 256	1, 625, 624
Total wheat ..... do....	41, 479, 460	51, 786, 393	25, 201, 062	27, 418, 970
Barley ..... do....	11, 379, 736	11, 055, 916	5, 266, 096	4, 630, 654
Oats ..... do....	11, 396, 010	12, 445, 483	5, 118, 785	5, 407, 928
Maize ..... do....	17, 683, 212	20, 420, 292	7, 484, 178	8, 112, 158
Total cereal grains ..... do....	81, 938, 418	95, 708, 084	43, 070, 121	45, 569, 710
Wheat-meal and flour:				
Germany ..... do....	751, 366	796, 301	706, 039	643, 447
France ..... do....	659, 568	1, 752, 079	606, 457	1, 381, 394
United States ..... do....	3, 290, 235	2, 273, 846	2, 915, 752	1, 794, 272
British America ..... do....	389, 355	356, 756	332, 096	267, 864
Other countries ..... do....	1, 139, 084	867, 697	1, 149, 476	801, 190
Total wheat-meal and flour ..... do....	6, 229, 608	6, 048, 679	5, 709, 820	4, 828, 167
Corn-meal ..... do....	8, 511	7, 494	14, 405	12, 130
Total values of cereal imports ..... do....	.....	.....	48, 794, 346	50, 410, 007

CROP ACREAGE AND LIVE STOCK IN GREAT BRITAIN.—The British official returns show that in the island of Great Britain, in 1875, the total acreage in crops, bare fallow, and grass was 31,417,212 acres, showing an increase of 150,593 over 1874. England increased her area from 24,008,368 acres to 24,113,171; Wales from 2,678,730 to 2,696,143; Scotland from 4,579,821 to 4,607,898. The total under grain-crops was 9,451,650, an increase of 20,160. Of this total 7,528,843 were in England, an increase of 23,467; Wales fell off from 516,001 to 512,178; Scot-

land reports 1,410,929, an increase of only 516 acres. Wheat lost ground to the extent of 287,819 acres, the whole island having, in 1875, 3,342,481 acres. England had 3,128,547 acres, a loss of 262,893 acres; Wales 111,797, a loss of 6.072; Scotland, 102,137, a loss of 18,854. The acreage in barley and bere increased from 2,287,987 to 2,509,701; in England from 1,889,722 to 2,090,423; in Wales from 152,425 to 154,444; in Scotland from 245,840 to 264,834. The oats acreage increased from 2,596,384 to 2,664,009; in England from 1,356,739 to 1,421,951; in Wales from 235,621 to 237,170; in Scotland from 1,004,024 to 1,004,888. The rye acreage was 54,903, an increase of 12,325; in England 43,544, an increase of 6,896; in Wales 1,593, an increase of 26; in Scotland 9,766, an increase of 753. The acreage in beans rose from 559,044 to 564,181; England reporting 533,455, an increase of 7,894; Wales 3,398, a decrease of 363; Scotland 27,328, a decrease of 1,394. The acreage in pease increased 5,828 acres, being 316,375 in 1875, of which England had 310,623, Wales 3,776, and Scotland 1,976; Wales decreased and the other two increased.

The total acreage under green crops was 3,664,104, an increase of 82,834, England reporting 2,848,470, Wales 131,085, and Scotland 684,549; England increased and the others decreased. Of these so-called green crops 522,653 were in potatoes, an increase of 2,223, England having a total of 320,477, Wales 44,505, and Scotland 157,671; England increased and the others decreased. Turnips and swedes increased from 2,133,336 to 2,142,698, England having 1,569,049, Wales 70,326, and Scotland 503,323. Mangels rose from 322,614 to 361,615, of which 352,196 were in England, 7,261 in Wales, and 2,158 in Scotland. Carrots increased 1,009, being 14,936 in 1875, of which 13,591 were in England, 361 in Wales, and 984 in Scotland. Cabbage, kohl-rabi, and rape occupied 189,733, an increase of 20,448; 183,402 in England, 1,237 in Wales, and 5,094 in Scotland. Lucern, vetches, and other green crops, not including clover or grass, aggregated 432,469 acres, an increase of 10,791; England 409,755, Wales 7,395, Scotland 15,319.

Of miscellaneous crops, 6,751 acres were in flax, a decline of 2,643—England 6,547, Wales 54, Scotland 150. England grew 69,203 acres of hops, against 65,799 in 1874; neither Wales nor Scotland report anything of this crop in 1875. The bare fallow-lands declined from 660,206 to 557,947—England 515,154, Wales 25,917, Scotland 16,876.

Clover, sainfoin, and grasses under rotation, occupied 4,354,071 acres, an increase of 13,329, nearly half of which were mown for hay; England reports 2,608,106, Wales 360,596, and Scotland 1,385,369. Permanent pastures, meadow or grass, not broken up in rotation, not including heath or mountain land, occupied 13,313,486 acres, an increase of 245,474, about one-third being mown for hay. England had 10,537,148 acres, Wales 1,666,313, and Scotland 1,110,025.

Of farm-animals, the total number of horses on the island was 1,340,129, an increase of 28,390, over one-third being unbroken animals and breeding-mares, and the remainder used. England reports 1,031,776, Wales 124,711, Scotland 183,642. Horned cattle declined from 6,125,491 to 6,012,824. Of these, 2,253,241 were milch-cows, a decrease of 20,556. England had 4,218,470 cattle and 1,595,296 milch-cows; Wales 651,274 cattle and 261,082 cows; Scotland 1,143,080 cattle and 398,863 cows. The total number of sheep was 29,166,139, a decrease of 1,147,802; over a third were less than a year old. England reports 19,113,335, a decrease of 746,413; Wales 2,951,810, a decrease of 102,486; Scotland 7,100,994, a decline of 288,493. Of pigs, by which is meant all classes of swine, the number declined from 2,422,832 to 2,229,918—England 1,875,357,

losing 173,424; Wales 203,348, losing 10,406; Scotland 151,213, gaining 916.

The Isle of Man and the Channel Islands have under crops and in bare fallow and grass 122,721 acres, of which 30,982 were in grain-crops, of which 10,292 were in wheat, 7,158 in barley, or bere, 12,797 in oats, 120 in rye, 263 in beans, 358 in pease. The total acreage in green crops was 22,836, of which 8,949 were in potatoes, 9,775 in turnips and swedes, and 2,692 in vetches, lucern, &c. Of bare fallow there were reported 739 acres; 39,959 acres were in clover, &c., under rotation, about one-fourth being cut for hay; 28,205 acres in permanent pasture, &c. These islands in 1875 contained 9,562 horses, 37,963 cattle, (including 16,575 milch-cows,) 76,352 sheep, and 16,014 pigs.

PHOSPHATIC MINERAL FERTILIZERS.—In the Journal of the Royal Agricultural Society of England, for 1875, Dr. Augustus Voelcker, consulting chemist of the society, publishes a supplement to his article published in the volume of 1861, upon the chemical constitution of phosphatic minerals used as fertilizers. Since his former publication he notes an extraordinary development of the manufacture of artificial manures, a branch of production almost unknown thirty years ago, and the numerous discoveries of raw materials resulting from the increased demand for fertilizers. Coprolitic or phosphatic deposits have been discovered in various parts of England, France, Germany, Russia, Spain, Portugal, South Carolina, San Domingo, and several small uninhabited islands of the Caribbean Sea. A few selected analyses of these materials are given by Dr. Voelcker, indicating the practical drift of these discoveries in their influence upon agriculture.

French coprolites, mostly from the neighborhood of Boulogne, are hardly distinguishable except by actual analysis from the inferior nodules of Norfolk and Bedfordshire, in England. In the Boulogne coprolites the phosphate of lime averages between 40 and 46 per cent., of the whole, and the insoluble siliceous matter about 25 per cent., with considerable proportions of oxide of iron, alumina, and fluorine. A superior variety is found in the valley of the Rhone, near Bellegarde, and close to the Swiss frontier. One specimen showed upon analysis 54.79 per cent. and another 60.60 per cent. of tribasic phosphate of lime. Both samples were lighter colored than the Cambridge coprolites, softer, and more easily pulverized. Perhaps the most valuable French deposits are those of the Ardennes region, but the cost of transportation will probably prevent the export of any to England, except the Boulogne varieties near the coast.

Phosphatic nodules are in great quantities in the department of Koursk, Russia, and are very similar in external appearance to those of Bedfordshire. One sample showed nearly 49 per cent. of tribasic phosphate, and about 33 per cent. of insoluble siliceous matter, with considerable quantities of oxide of iron, fluoride of calcium, and a little carbonate of lime; it had a dark-brown color.

Of English phosphates analyses are given of specimens from Cambridgeshire, showing from 56.32 per cent. to 63.60 per cent. of tribasic phosphate of lime, with insoluble siliceous matter from 7.77 to 10.10 per cent. A good sample from Bedfordshire shows 51.54 per cent. of the phosphate, 7.84 per cent. of carbonate of lime, and 20.81 per cent. of insoluble siliceous matter. Most of the Bedfordshire nodules are brown colored, and contain a great deal of oxide of iron. A beautiful specimen of fossil phosphatic wood, found in the Bedfordshire deposits, showed nearly 72 per cent. of the phosphate, with 4.19 per cent. of

insoluble siliceous matter; the woody structure was distinctly preserved, its organic matter having been replaced mainly by phosphate of lime.

At Cwmgynen, in North Wales, phosphatic minerals have been discovered near the lead-bearing clay-slate districts of Llangynag, in the Llandeilo series of Silurian rocks. A specimen taken from a compact block weighing one cwt. showed 64.77 per cent. of tribasic phosphate, with 22.14 per cent. of insoluble siliceous matter. This, however, was remarkable; the per cent. of phosphate in four other specimens ranging from 50.08 to 58.68. Two other cargo-samples showed 40.75 per cent. and 28.68 per cent. The two last named are hardly worth transporting any distance. North Wales has an abundance of phosphatic shale, but not of a character very available for market.

Canadian phosphates show a high percentage, good cargoes averaging from 70 to 72 per cent., and cargoes of less than 65 per cent. are rarely shipped. The per centum of siliceous matter is very low, five analyses varying from less than 1 per cent. to 13.50 per cent. They are difficult, however, to pulverize, but are of easy manipulation in the manufacture of concentrated superphosphate. The transportation across the ocean is a heavy tax on this production.

Spanish and Portuguese phosphorites of a white or yellowish color, vary in hardness and in the proportion of phosphate. In Spain, they are often found in solid beds, alternating with limestone and quartz. The latter is frequently mixed largely with the phosphorites, but the former in small quantity. They belong to the class of fluoride apatites, the fluorine often amounting to 14 per cent. Four rich specimens showed from 76.17 to 86.14 per cent. of phosphate of lime. The insoluble siliceous matter varied from 2.75 to 15.41 per cent. The highest per cent. of phosphate found by Dr. Voelcker was nearly 89, but cargoes in England seldom yield over 72, and the majority from 60 to 65. Twelve recent cargo-samples ranged from 56.19 to 75.25; in soluble siliceous matter from 4.98 to 37.29. The better qualities ground fine and treated with sulphuric acid produce light-colored concentrated superphosphates. They find ready sale and higher prices for their phosphate than coprolites and mineral phosphates containing much oxide of iron or alumina. They retain their high proportion of soluble phosphate unaltered by keeping, whereas those made from materials strongly impregnated with oxide of iron and alumina are apt to precipitate a portion of this valuable element, and to reduce another portion to the insoluble state.

Extensive workings of mineral phosphate are formed in the Lahn Valley, in the duchy of Nassau. The mineral occurs in pockets imbedded in ferruginous clay, but in some places it forms compact masses of earthy fracture, and of a light-gray or yellow color. Again it appears as a conglomerate of broken pieces cemented with red or brown clay, and mixed with greenstone, manganese, and iron. Rarely it occurs in slates of shaly fracture or in crystalline masses. Its richest varieties are botryoidal in structure and nearly white or yellow. The latter are becoming scarce, and the exportation to England has been almost arrested by the depreciated quality of the product. Three rich specimens from Staffel showed from 79.01 to 88.54 per cent. of phosphate, with but slight proportions of siliceous matter. Three cargo-samples gave from 66.01 to 77.99 of phosphate, with insoluble siliceous matter ranging from 3.48 to 10.62. Color and other external characters are a very imperfect test of the excellence of these minerals, which is made apparent only by chemical analysis. The foregoing, however, are above the average value of German or Nassau phosphates. Six cargo-samples are noted,

giving from 56.80 to 73.11 per cent. of phosphate. The less pure sorts are washed and sifted, yet a large proportion of the produce is too poor for profitable exportation, which requires at least 65 per cent.

Phosphates have also been found in the valley of the Lot, a tributary of the Garonne, and in various localities in the south of France. It is known as the Bordeaux phosphate, and occurs in pockets, varying greatly in appearance, texture, and commercial value. Sometimes it occurs in snow-white compact masses, moderately hard, and with an earthy fracture, but more frequently it is opal-like, grayish, of a waxy luster, and conchoidal fracture. Both kinds are rich in phosphoric acid as well as those occurring in botryoidal masses or stalactic forms. The more ordinary kinds are yellow or brown, dense and hard, but readily decomposed by sulphuric acid, and adapted to the manufacture of high-grade superphosphates. The first specimens brought to England ranged from 71 to 74 per cent. in phosphate; but poorer qualities, ranging from 58 to 65 per cent., have of late years, been shipped. Dr. Voelcker concludes that either the best qualities are showing signs of exhaustion or that the increasing demand prompts the shipment of inferior varieties. The high-quality samples contain from 73.78 to 77.52 per cent. of tribasic phosphate; medium quality, 63.35 to 69.16; inferior quality, 53.40 to 58.20.

The calcareous strata around Charleston, South Carolina, abound in phosphatic nodules quite similar to the coprolites of the London basin. These strata underlie the city of Charleston and extend between the Santee and Ashepoo Rivers, covering an irregular area of fifty-five to sixty miles. Within this basin are found deposits of fossil-bones and other animal remains, rich in the phosphate of lime, but the chief supply is found in nodules constituting from a third to a half of the strata in which they are embedded. They are generally found in detached deposits, at irregular intervals, along the streams. They are generally rough, irregular in form, water-worn, rounded, and light yellow or brown; they are somewhat cavernous and perforated by boring-shells. Fish-teeth and fragments of bones are frequently found with them. The land-deposits are lighter in color and softer than the river phosphates. Where embedded in and overlaid by sand it is readily separated by the action of water; where embedded in clay the tenacity of its surroundings renders it hard to disengage them. Later importations into England are better cleansed than previous ones. The following analyses illustrate the characters of land and river phosphates respectively:

Land phosphates.

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.
Moisture } Water of combination }	7.40	2.29	10.30	3.98	8.01	{ 6.59 1.09	7.69 1.34
Phosphoric acid*	26.50	24.29	22.06	25.47	23.93	24.80	23.35
Lime	37.20	38.71	37.24	40.11	36.75	38.84	36.41
Oxide of iron and alumina, magnesia, carbonic acid, &c	16.27	17.28	15.45	18.82	16.88	17.01	16.54
Insoluble siliceous matter	12.63	17.43	14.95	11.62	14.43	11.67	14.67
	100.00	100.00	100.00	100.00	100.00	100.00	100.00
*Equal to tribasic phosphate of lime	57.85	53.02	48.16	55.60	52.24	54.14	50.98

It is probable that the low per cent. of phosphate in the above cargo specimens is due to the excess of water in the cargo, or to failure to wash it with sufficient care from adherent sand.

River phosphates.

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.
Moisture, water of combination, and loss upon ignition	4.07	1.56	2.57	2.64	1.86	2.89	2.58
Phosphoric acid*	28.44	26.89	27.11	26.97	26.89	27.44	25.31
Lime	45.07	42.28	42.79	43.54	42.43	42.45	39.37
Magnesia, carbonic acid, oxide of iron, alumina, &c	15.16	18.47	17.54	17.57	17.39	17.80	16.19
Insoluble siliceous matter	7.26	10.80	9.99	10.28	11.43	9.42	16.55
	100.00	100.00	100.00	100.00	100.00	100.00	100.00
* Equal to tribasic phosphate of lime	62.09	58.70	59.18	58.87	58.70	59.90	55.25

The rivers belong to the State, and hence their underlying deposits can only be worked with consent of the legislature. Two companies have been incorporated for the working of this class of phosphates, upon which the State treasury receives a royalty of $1 per ton. The production of phosphates has been several years in operation, the first export of 6 tons being in 1867, and to American ports, from Charleston and Beaufort. The export rose, in 1868, to 11,862 tons, of which 208 were to foreign ports; in 1869 to 28,271 tons, 3,760 tons being shipments to foreign ports; in 1870 to 53,571 tons, 13,652 tons to foreign ports; 1871, 64,792 tons, of which 42,923 tons were to foreign ports; 1872, 47,623 tons, of which 29,682 tons were for foreign trade. The total export up to that time was 206,305 tons, of which 90,225 tons were sent abroad. The foreign export had greatly surpassed the domestic export.

From the small uninhabited island of Sombrero, of the Leeward group, in the Caribbean Sea, a valuable rock-phosphate has for several years been imported into England, but, as the supply is growing small, it is feared that the accessible deposits have been mostly exhausted. The rock is now worked beneath sea-level, and at great expense, while the number of dangerous coral-reefs forbid the close approach of ships to land, rendering the shipment of the rock very difficult at all times, and impossible during the stormy season, from September to January. Four cargoes imported into England during 1874 showed from 69.20 to 71.65 per cent. of phosphate, and 12.68 to 16.64 per cent. of carbonate of lime, with an average of less than 1 per cent. of insoluble siliceous matter. It is light colored, somewhat porous, and easily pulverized. It contains but little alumina or oxide of iron, and its increasing proportion of carbonate of lime seems to indicate that it is mined closer to the underlying coral-rock. It is very likely that the deposits hitherto worked are approaching exhaustion.

Another uninhabited island in the Caribbean Sea, Navassa, seventy-two miles east of Jamaica, surrounded by coral-reefs, and hence of difficult approach, supplies a mineral phosphate of reddish-brown color from the numerous cavities in its coral frame-work. It consists mostly of globular grains of phosphate of lime cemented into hard masses, and contaminated largely with oxide of iron and alumina. Its composition varies considerably. The lime in composition is insufficient to absorb all the phosphoric and carbonic acids, and hence a portion is united with oxide of iron or alumina. These elements always lower the commercial value of the mineral, inasmuch as the superphosphate made from it is poorer in character. The following detailed analyses of specimens of this mineral are given:

Navassa phosphates.

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 6.	No. 7.	No. 8.	No. 9.
Moisture, water of composition, and loss in heating.	11.37	12.65	12.08	12.08	10.90	13.99	12.55	9.35	10.53
Phosphoric acid*	31.18	23.47	31.15	30.21	31.08	30.04	31.90	31.85	29.60
Lime	37.70	34.07	38.58	35.32	36.54	35.99	36.09	37.91	31.72
Magnesia, carbonic acid, oxide of iron, alumina, &c.	16.83	18.53	15.57	19.65	17.78	17.04	16.91	17.99	25.45
Insoluble siliceous matter	2.92	6.28	2.62	2.74	3.70	2.94	2.55	2.90	2.70
	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
*Equal to tribasic phosphate of lime.	68.07	62.15	68.01	65.94	67.85	65.58	69.64	69.53	64.62

The carbonate of lime in the first three specimens amounts to over five per cent.

Rock-phosphates of quite variable character are also found in St. Martin, a small island of the Windward group. They are mingled with inferior materials, requiring care and labor to eliminate. The percentage of phosphate of lime in eight analyses ranged from 36.39 to 80.64, and of carbonate of lime from 6.57 to 46.81. It is remarkable that the latter element was almost in inverse proportion to the former. Those specimens of low percentage of phosphate are practically useless and unsalable.

Aruba, one of the Leeward Caribbean islands, belonging to Holland, has been occupied for gold-mining since 1824. The mining company have recently obtained a concession to work the newly-discovered phosphatic minerals of the island. These are compact, hard, stone-like masses of rock, of light-brown or yellowish color, streaked with chocolate bands, and are frequently interlaced with calc-spar. These phosphates will probably prove a better investment than the gold-mining of the island, as they contain from 63 to 76 per cent. of phosphate of lime, with variable quantities of the carbonate.

Redonda, another Caribbean islet, yields a peculiar phosphate, once mistaken for phosphate of lime, but now known to consist, principally, of the hydrated phosphate of alumina with varying proportions of oxide of iron and insoluble siliceous matter. It is utilized for the production of alum, and the impure phosphoric acid extracted is incorporated with salts of ammonia and other fertilizing materials, to make artificial manures. After treatment with sulphuric acid it is also used to precipitate and clarify town sewage, for which it is a very effective agent. Four analyses of this material showed from 42.35 to 84.09 per cent. of phosphate of lime, though in most samples there is little or no lime in composition.

The phosphate of Alta Vela, an islet near Hayti, is harder and lighter colored than that of Redonda; three analyses gave from 43.81 to 67.37 per cent. of phosphate.

After giving in detail the specific characters of these different phosphatic deposits, Dr. Voelcker presents some conclusions of general interest and value. He says that none of the varieties described are of any great value unless treated with sulphuric acid. Some German phosphates of low quality have been usefully applied after simple pulverization in the neighborhood of their extraction, like marl, at the rate of about a ton per acre; but as a rule phosphates are useful only in the manufacture of superphosphates, in which the aim of the process is to render the phosphate soluble. Soluble phosphate of lime is a specific

compound, and is as valuable when derived from mineral deposits as from bones. Insoluble phosphate has little value, though bone-dust is available as plant-food.

The commercial value of phosphatic minerals depends almost entirely upon the percentage of phosphate of lime easily accessible by inexpensive processes. Some of these minerals contain ingredients which largely absorb the sulphuric acid with which it is treated. Carbonate of lime is especially greedy of this element, and when present in large proportions detracts greatly from its value. A small percentage, however, is rather beneficial than otherwise, as the carbonic acid set free in escaping through the mass renders it more porous and bulky, thus improving its mechanical condition as a manure. Oxide of iron and alumina detract from the value of the deposit in proportion to their percentage. Fluoride of calcium affects their commercial value, as also do the porosity or hardness of the mass and the ease or difficulty with which it can be pulverized.

MARKET-PRICES OF FARM-PRODUCTS

FOR DECEMBER, 1875, AND JANUARY, 1876.

The following quotations represent, as nearly as practicable, the state of the market at the beginning of each month.

Articles.	December.	January.
NEW YORK.		
Flour, superfine State and western, per barrel	$4 75 to $5 00	$4 25 to $4 50
extra State, do	5 10 to 5 90	4 80 to 5 90
extra to choice western, do	5 10 to 9 00	4 80 to 9 00
common to fair southern extras, do	5 20 to 6 60	4 80 to 6 40
good to choice southern extras, do	6 65 to 8 75	6 50 to 8 75
Wheat, No. 1 spring, per bushel	1 35 to 1 39	1 29 to 1 33
No. 2 spring, do	1 24 to 1 28	1 23 to 1 25
winter, red, western, do	1 15 to 1 40	1 16 to 1 45
winter, amber, western, do	1 15 to 1 40	1 16 to 1 45
winter, white, western, do	1 35 to 1 48	1 32 to 1 50
Corn, do	71 to 76	66 to 70
Oats, do	41 to 51	41 to 50
Rye, do	87 to ———	87 to 95
Barley, do	87 to 1 18	85 to 1 20
Hay, baled, first quality, per ton	18 00 to 22 00	21 00 to 23 00
baled, second quality, do	14 00 to 15 00	16 00 to ———
Beef, mess, per barrel	11 50 to ———	11 00 to 11 50
extra mess, do	12 50 to ———	12 00 to 12 50
Pork, mess, per barrel	21 50 to 22 50	——— to 20 75
extra prime, do	16 00 to 16 50	15 50 to ———
prime mess, do	20 00 to 21 50	19 50 to ———
Lard, per pound	12 to 12⅞	12⅜ to 13¼
Butter, western, do	18 to 34	17 to 34
State dairy, do	23 to 36	23 to 35
Cheese, State factory, do	7¼ to 13¼	7 to 13¼
western factory, do	6 to 12¼	6 to 12¼
Sugar, fair to prime refining, do	8 to 8¼	8 to 8¼
Cotton, ordinary to good ordinary, do	11 to 12⅜	10¼ to 11⅜
low middling to good middli'g, do	12⅜ to 13⅜	12⅜ to 14
Tobacco, lugs, do	7 to 9	7 to 9
leaf, do	9½ to 13	9½ to 15½

Market-prices of farm products—Continued.

Articles.	December.	January.
NEW YORK—Continued.		
Wool, American XXX and picklock, per pound	$0 48 to $0 57	$0 48 to $0 57
American X and XX ....do....	40 to 48	40 to 48
American combing....do....	50 to 62	50 to 62
pulled....do....	20 to 47	20 to 47
California, spring clip....do....	20 to 33	18 to 33
California, fall clip....do....	17 to 25	15 to 25
BOSTON.		
Flour, western superfine, spring...per barrel..	4 50 to 4 75	4 00 to 4 50
common spring extras....do....	5 25 to 5 75	4 75 to 5 50
good to fancy n'hwest'n spring..do....	5 75 to 8 75	5 25 to 9 25
good to fancy western winter..do....	6 50 to 8 75	6 00 to 9 00
southern family ....do....	7 50 to 9 00	6 50 to 9 00
Wheat....per bushel..	—— to ——	1 00 to 1 50
Corn....do....	74 to 80	65 to 68
Oats....do....	41 to 55	42 to 54
Rye....do....	95 to 1 00	95 to 1 00
Barley....do....	90 to 1 30	90 to 1 30
Hay, eastern and northern....per ton...	13 00 to 22 00	15 00 to 21 00
Beef, mess....per barrel..	10 00 to 10 00	12 00 to 12 50
extra mess....do....	11 00 to 12 00	13 00 to 13 50
family....do....	16 50 to 17 00	16 50 to 17 00
Pork, prime....do....	15 50 to 16 50	15 00 to 15 50
mess....do....	22 50 to 23 00	21 50 to 21 75
Lard....per pound..	13½ to 14½	13½ to 14
Butter, New York and Vermont....do....	22 to 34	22 to 32
western....do....	15 to 33	17 to 33
Cheese, New York and Vermont factory do....	10½ to 13	10 to 13
western factory....do....	8 to 13	10 to 12½
Sugar, fair to good refining....do....	8¼ to 8½	8 to 8¼
Cotton, ordinary to good ordinary....do....	11 to 12⅝	10 to 12
low middling to good middling..do....	13 to 14	13 to 14¼
Wool, Ohio and Pennsylvania....do....	42½ to 50	45 to 53
Michigan....do....	—— to 45	42 to 45
other western....do....	42 to ——	41 to 45
pulled....do....	15 to 56	40 to 55
combing fleece....do....	40 to 64	55 to 65
California....do....	15 to 35	15 to 36
PHILADELPHIA.		
Flour, superfine....per barrel..	4 25 to 4 75	4 00 to 4 37½
Pennsylvania extra to choice...do....	4 75 to 6 50	4 50 to 6 50
western extra to choice....do....	6 00 to 6 50	5 50 to 6 37½
Wheat, white....per bushel..	1 45 to 1 52	1 42 to 1 45
amber....do....	—— to 1 41	—— to 1 40
red....do....	1 20 to 1 40	1 00 to 1 38
Rye....do....	86 to 89	88 to 90
Barley....do....	70 to 1 12	70 to 1 35
Corn....do....	74 to 76	56 to 68
Oats....do....	35 to 50	43 to 50
Hay, baled, prime....per ton..	22 00 to 24 00	22 00 to 24 00
baled, common to fair shipping..do....	20 00 to 22 00	20 00 to 22 00
Beef, western mess....per barrel..	7 00 to 9 00	8 00 to 9 00
extra mess....do....	8 00 to 9 00	8 00 to 9 00
Warthman's city family....do....	16 00 to ——	16 00 to ——
Pork, mess....do....	22 50 to 23 00	21 00 to 22 00
prime mess....do....	19 75 to 20 00	19 50 to 20 00
prime....do....	17 00 to 17 50	17 00 to 17 50
Lard....per pound..	13 to 17	13 to 16
Butter, choice Middle States....do....	29 to 40	27 to 38
choice western....do....	28 to 31	27 to 31

Market-prices of farm-products—Continued.

Articles.	December.	January.
PHILADELPHIA—Continued.		
Cheese, New York factory ..... per pound..	$0 12 to $0 14	$0 6½ to $0 13½
Ohio factory ..... do	10 to 13½	5 to 13
Sugar, fair to good refining ..... do	8¼ to 8½	8 to 8¼
Cotton, ordinary to good ordinary .... do	10⅝ to 12¾	10 to 12⅞
low middling to good middling .do	13 to 14¼	12⅜ to 14⅜
Wool, Ohio and Pennsylvania X to XXX ..... per pound..	48 to 48½	45 to 52
other western ..... do	42 to 48	42 to 48
tub-washed ..... do	40 to 56	40 to 54
pulled ..... do	37 to 60	26 to 64
combing ..... do	46 to 66	46 to 66
BALTIMORE.		
Flour, superfine ..... per barrel..	4 25 to 4 50	4 00 to 4 50
extra ..... do	4 75 to 5 50	4 75 to 6 25
family and fancy ..... do	5 25 to 8 75	7 00 to 8 75
Wheat, red ..... per bushel..	1 10 to 1 43	1 15 to 1 38
amber ..... do	1 45 to 1 50	1 47 to 1 55
white ..... do	1 15 to 1 45	1 15 to 1 45
Rye ..... do	75 to 85	75 to 85
Oats ..... do	37 to 50	40 to 48
Corn ..... do	57 to 71½	50 to 62½
Hay, Maryland and Pennsylvania .... per ton..	20 00 to 26 00	18 00 to 25 00
western ..... do	—— to ——	19 00 to 21 00
Pork, mess ..... per barrel..	19 50 to 22 50	21 50 to ——
extra ..... do	16 75 to 17 00	16 75 to 17 00
Lard ..... per pound..	13¼ to 14	12⅝ to 13½
Butter, western ..... do	20 to 30	18 to 28
eastern ..... do	20 to 35	18 to 35
Cheese, western factory ..... do	12 to 13½	11½ to 16
eastern factory ..... do	12 to 13½	12 to 13½
Sugar, fair to good refining ..... do	8 3/16 to 8 7/16	8 to 8¼
New Orleans grocery grades ... do	—— to ——	7⅞ to 9
Tobacco, lugs ..... do	6½ to 9	6½ to 11
leaf, common to middling .... do	9 to 11	9 to 11
Cotton, ordinary to good ordinary .... do	—— to 12	9¾ to 11½
low middling to good middling .do	12⅜ to ——	12¼ to 13¼
CINCINNATI.		
Flour, superfine ..... per barrel..	4 00 to 4 25	3 75 to 4 00
extra ..... do	4 50 to 5 00	4 25 to 4 75
family and fancy ..... do	5 30 to 6 25	5 00 to 6 00
Wheat, winter, red ..... per bushel..	1 15 to 1 45	1 15 to 1 33
hill, (amber) ..... do	—— to ——	—— to ——
white ..... do	1 25 to 1 55	1 15 to 1 48
Rye ..... do	55 to 80	55 to 79
Barley ..... do	50 to 1 25	50 to 1 50
Corn ..... do	47 to 65	45 to 47
Oats ..... do	25 to 42	35 to 44
Hay, baled, No. 1 ..... per ton..	18 00 to ——	15 00 to 16 00
lower grades ..... do	11 00 to 17 00	8 00 to 14 00
Pork, mess ..... per barrel..	20 75 to 22 00	19 75 to 20 00
Lard ..... per pound..	12½ to 15	12½ to 14½
Butter, choice ..... do	27 to 28	25 to 28
prime ..... do	25 to 26	24 to 25
Cheese, choice to prime factory ..... do	12½ to 13	12 to 13
Sugar, New Orleans, fair to good ..... do	8⅝ to ——	7 to ——
prime to choice .. do	—— to ——	8⅜ to ——
Tobacco, lugs ..... do	15 to 20	15 to 20
leaf ..... do	28 to 30	28 to 30

Market-prices of farm-products—Continued.

Articles.	December.	January.
CINCINNATI—Continued.		
Cotton, ordinary to good ordinary, per pound	$0 10½ to $0 11½	$0 09½ to $0 10⅜
low middling, do	12 to 12⅞	12 to 13⅓
Wool, fleece, common to fine, do	38 to 43	38 to 43
tub-washed, do	43 to 48	43 to 48
unwashed, clothing, do	25 to 30	25 to 30
combing, do	37 to 38	34 to 38
pulled, do	31 to 37	31 to 37
CHICAGO.		
Flour, choice winter extras, per barrel	6 50 to 7 50	—— to ——
common to good winter extras, do	4 75 to 5 50	—— to ——
spring extras, common to good, do	—— to ——	4 00 to 4 75
choice spring extras, do	5 25 to 5 75	5 00 to 5 25
patent spring, do	6 50 to 7 50	6 50 to 7 25
spring superfines, do	3 00 to 4 00	3 00 to 3 50
Wheat, No. 1 spring, per bushel	1 06½ to ——	1 05 to ——
No. 2 spring, do	1 03 to 1 04	95½ to 95⅝
No. 3 spring, do	86 to 87½	78½ to 78⅝
Rye, No. 2, do	68 to ——	67 to 67½
Barley, No. 2, do	86 to ——	79 to 80¾
Corn No. 2, do	47¾ to 48½	45 to ——
Oats, No. 2, do	30½ to 30⅝	30 to 34
Hay, timothy, per ton	12 00 to 15 50	11 to 13 00
prairie, do	7 00 to 10 50	8 50 to 9 50
Beef, mess, per barrel	9 75 to 10 00	9 50 to 10 00
extra mess, do	10 75 to 11 00	10 50 to 11 00
Pork, mess, do	19 37½ to 19 40	19 10 to ——
prime mess, do	17 50 to 17 75	17 00 to ——
extra prime, do	14 00 to 14 25	14 25 to ——
Lard, per pound	12½ to ——	12⅜ to 12 4/10
Butter, choice to fancy, do	25 to 32	25 to 32
medium to good, do	19 to 23	18 to 23
Cheese, good to prime factory, do	11 to 13	12 to 13
Sugar, New Orleans, common to prime, do	7¼ to 8⅝	7¼ to 9
Wool, tub-washed, do	44 to 52	44 to 52
fleece-washed, do	38 to 44	39 to 43
unwashed, do	25 to 33	25 to 33
pulled, do	—— to ——	33 to 36
SAINT LOUIS.		
Flour, winter, common to choice, per barrel	5 00 to 6 75	5 00 to 7 00
spring, do	—— to ——	—— to ——
Wheat, white winter, per bushel	1 10 to 1 20	1 00 to 1 30
red winter, do	1 00 to 1 50	1 00 to 1 50
spring, do	—— to ——	—— to ——
Corn, do	35 to 47	35 to 44
Rye, do	54 to 68	60 to 68
Barley, do	40 to 1 15	80 to 1 30
Oats, do	28 to 39	30 to 39
Hay, timothy, per ton	14 50 to 16 50	14 00 to 16 50
prairie, do	8 00 to 10 00	8 00 to 10 00
Beef, mess, per barrel	14 00 to 14 50	14 00 to 14 50
Pork, mess, do	21 60 to 21 75	19 50 to 20 50
Lard, per pound	12½ to 13	15 to 15½
Butter, prime to choice dairy, do	28 to 30	28 to 30
country packed, do	20 to 25	20 to 25
Cheese, Ohio factory, do	13 to 14	13 to 14
New York factory, do	13 to 14	13 to 14
Wool, tub-washed, do	42 to 50	42 to 50
fleece-washed, do	38 to 42	38 to 42
unwashed, do	30 to 38	30 to 38

Market-prices of farm-products—Continued.

Articles.	December.	January.
NEW ORLEANS.		
Flour, superfine ..... per barrel..	$4 25 to ———	$3 80 to $4 00
extra ..... do.....	4 50 to $5 25	4 50 to 5 25
choice to fancy ..... do.....	5 62½ to 7 25	5 50 to 7 50
Corn, white and yellow ..... per bushel..	54 to 60	54 to 56
Oats ..... do.....	37 to 52	45 to 50
Hay, choice ..... per ton..	24 to ———	25 00 to ———
prime ..... do.....	20 00 to 22 00	18 00 to 22 00
Beef, Kansas ..... per barrel..	——— to ———	12 00 to 12 25
western ..... do.....	12 00 to 17 00	16 00 to 17 00
Fulton market ..... per half barrel..	11 50 to ———	11 50 to ———
Pork, mess ..... per barrel..	22 50 to 23 25	20 50 to 21 75
Lard ..... per pound..	13½ to 14¾	12½ to 14½
Butter, choice Goshen ..... do.....	33 to 35	33 to 35
choice western ..... do.....	22 to 25	25 to 28
Cheese, choice western factory ..... do.....	13 to ———	13 to 13½
New York cream ..... do.....	14 to 15	14 to 15½
Sugar, fair to fully fair ..... do.....	6½ to 7	6¼ to 7
prime to strictly prime ..... do.....	7¼ to 7⅞	7⅛ to 7⅞
clarified, white and yellow .... do.....	8½ to 9	8½ to 9¼
Cotton, ordinary to good ordinary .... do.....	10¼ to 10⅞	9¼ to 10½
low middling to good middling .. do.....	11½ to 13⅛	11⅛ to 13¼
Tobacco, lugs ..... do.....	7 to 9	6 to 8
low leaf to medium leaf ..... do.....	9½ to 14	9 to 14
SAN FRANCISCO.		
Flour, superfine ..... per barrel..	4 50 to 5 00	4 00 to 5 00
extra ..... do.....	5 25 to 5 50	5 25 to 5 50
family and fancy ..... do.....	5 75 to 6 25	5 75 to 6 25
Wheat, California ..... per cental..	1 75 to 1 95	1 75 to 2 00
Oregon ..... do.....	1 75 to 1 95	1 75 to 1 95
Barley ..... do.....	1 20 to 1 50	1 10 to 1 35
Oats ..... do.....	1 65 to 2 05	1 85 to 2 05
Corn ..... do.....	1 22½ to 1 35	1 05 to 1 20
Hay, State ..... per ton..	14 00 to 21 00	15 00 to 19 00
Beef, mess ..... per barrel..	9 00 to 10 00	9 00 to 10 00
family mess ..... per half-barrel..	8 00 to 10 00	8 00 to 10 00
Pork, mess ..... per barrel..	23 50 to 24 00	22 00 to 23 00
prime mess ..... do.....	17 50 to 18 00	17 50 to 18 00
Lard ..... per pound..	13½ to 16	13½ to 16
Butter, overland ..... do.....	18 to 25	18 to 25
California ..... do.....	30 to 60	30 to 35
Oregon ..... do.....	20 to 25	20 to 25
Cheese ..... do.....	12½ to 15	12½ to 15
Wool, native ..... do.....	10 to 15	10 to 15
California ..... do.....	15 to 25	15 to 18
Oregon ..... do.....	20 to 25	18 to 20

LIVE-STOCK MARKETS.

NEW YORK.		
Cattle, extra beeves ..... per cental..	$12 75 to $13 50	$12 25 to $12 75
good to prime ..... do.....	11 50 to 12 50	10 75 to 12 00
common to fair ..... do.....	8 50 to 11 25	7 75 to 10 50
Texans ..... do.....	7 50 to 10 50	7 00 to 8 50
milch-cows ..... per head..	——— to ———	50 00 to 85 00
veal calves ..... per cental..	7 50 to 10 00	7 00 to 10 00
Sheep ..... do.....	4 50 to 6 50	5 00 to 7 50
Swine ..... do.....	7 50 to ———	——— to ———

Live-stock markets—Continued.

Articles.	December.			January.		
PHILADELPHIA.						
Cattle, prime beeves ..... per cental..	$7 00	to	$7 62½	$7 12½	to	$7 50
fair to good ..... do.....	5 50	to	6 75	5 50	to	7 00
common ..... do.....	4 00	to	5 50	3 50	to	5 25
Sheep ..... do.....	4 50	to	6 00	4 50	to	8 00
Swine, corn-fed ..... do.....	10 50	to	11 50	10 00	to	11 00
BALTIMORE.						
Cattle, best beeves ..... per cental..	6 12	to	6 50	5 50	to	6 25
first quality ..... do.....	5 12	to	6 12	4 50	to	5 50
medium or good quality ..... do.....	4 25	to	5 75	3 50	to	4 50
ordinary ..... do.....	3 00	to	4 25	3 00	to	3 50
general average of the market .. do.....	4 62	to	———	4 25	to	———
most of the sales ..... do.....	4 00	to	5 25	3 75	to	4 75
milch-cows ..... per head..	———	to	———	———	to	———
Sheep ..... per cental..	4 00	to	5 25	4 50	to	5 50
Swine ..... do.....	8 75	to	10 00	9 00	to	10 00
CINCINNATI.						
Cattle, good to prime butchers' steers ..... per cental..	4 75	to	5 25	4 50	to	5 50
fair to medium ..... do.....	3 50	to	4 50	3 25	to	4 25
common ..... do.....	2 50	to	3 25	2 00	to	3 00
milch-cows ..... per head..	25 00	to	50 00	———	to	———
veal calves ..... per cental..	———	to	———	———	to	———
Sheep ..... do.....	3 25	to	5 50	3 00	to	6 00
Swine ..... do.....	6 90	to	7 50	6 50	to	7 30
CHICAGO.						
Cattle, extra-graded steers ..... per cental..	———	to	6 40	———	to	———
choice beeves ..... do.....	6 00	to	———	5 25	to	5 75
good beeves ..... do.....	4 00	to	5 40	4 50	to	5 10
medium ..... do.....	3 00	to	3 75	4 00	to	4 50
inferior natives ..... do.....	2 50	to	3 00	2 50	to	4 00
Texans ..... do.....	2 75	to	4 00	2 50	to	3 75
Sheep ..... do.....	3 00	to	4 50	4 25	to	5 50
Swine ..... do.....	6 85	to	7 15	5 30	to	7 25
SAINT LOUIS.						
Cattle, good to choice native steers .per cental..	5 75	to	6 12	5 75	to	6 25
common to fair natives ..... do.....	3 50	to	4 00	3 50	to	4 50
inferior to common ..... do.....	2 25	to	3 50	2 25	to	3 50
Texans, fair to choice ..... do.....	2 40	to	4 25	2 40	to	4 50
Sheep ..... do.....	2 75	to	4 90	2 75	to	4 90
Swine ..... do.....	6 90	to	7 00	6 00	to	7 50
Horses, plugs ..... per head..	20 00	to	30 00	20 00	to	30 00
plain ..... do.....	60 00	to	75 00	60 00	to	75 00
street-car ..... do.....	75 00	to	125 00	75 00	to	125 00
heavy draught ..... do.....	115 00	to	125 00	115 00	to	125 00
good drivers ..... do.....	100 00	to	125 00	100 00	to	125 00
extra ..... do.....	175 00	to	200 00	175 00	to	200 00
auction horses and ponies .... do.....	———	to	———	20 00	to	85 00
Mules, 14 to 15 hands high ..... do.....	80 00	to	130 00	80 00	to	130 00
15 to 16 hands high ..... do.....	130 00	to	170 00	130 00	to	170 00
extra ..... do.....	175 00	to	200 00	175 00	to	200 00
NEW ORLEANS.						
Cattle, Texas beeves, choice ..... per head..	40 00	to	46 00	40 00	to	46 00
first quality .... do.....	30 00	to	35 00	30 00	to	35 00
second quality .. do.....	20 00	to	25 00	20 00	to	25 00
western beeves ..... per cental..	———	to	———	4 00	to	6 50
milch-cows ..... per head..	40 00	to	90 00	40 00	to	90 00
Sheep ..... do.....	2 00	to	6 00	2 00	to	6 00
Swine ..... do.....	7 00	to	8 50	7 00	to	8 00

FOREIGN MARKETS.

WHEAT.—The old year in England closed with very mild, spring-like weather, but during the first week in January sharp frosts, with a temperature of 18° F., and followed by heavy snow-fall at various points, indicated the approach of abrupt changes and a class of conditions very trying to the short crop of winter-wheat already seeded, and gave rise to apprehensions as to the spring-planting. Yet the abundance of the supplies of foreign wheat were such as to prevent a rise in prices on account of the unfavorable indications of the coming crops. Prices with a poor crop range but 1*s.* 1*d.* per quarter higher than at the opening of 1874, with a very good crop. English farmers have but little inclination to overstock even the country-markets. Only a third of the last year's crop has been disposed of, and the trade in domestic wheat is very dull and intermittent. Frost at various points in France arrested the downward tendency of the Paris market, but the wheat and flour trade manifested no buoyancy. The same indications are reported at different points in Belgium, Holland, and Germany, but the general discontent of wheat-growers with current rates still resists the pressure for lower prices. As Saint Petersburg and Odessa were both closed by frost, shipments from Russia could not be expected for some weeks. A sudden advance upon prices at Adelaide, in Australia, with an unexpected difficulty in obtaining wholesale qualities, indicated that the supply from that quarter would be below expectations.

The sales of English wheat during the first week in January amounted to 34,557 quarters at 45*s.* 3*d.*, against 37,921 quarters at 44*s.* 3*d.* the same week last year. The London averages were 46*s.* on 677 quarters. The imports into the United Kingdom during the last week of December, 1875, were 1,290,368 cwt. Monday, January 3, opened in Mark Lane upon small supplies of English wheat, with moderate arrivals of foreign. The fresh samples of Essex and Kent were in short supply, and mostly in very poor condition; their value was quite irregular, and difficult to state. Essex and Kent, white, were quoted at 48*s.* to 55*s.* per quarter; ditto, red, 42*s.* to 50*s.*; Norfolk, Lincolnshire, and Yorkshire, 41*s.* to 50*s.*; Dantzig, 52*s.* to 57*s.*; Königsberg, 49*s.* to 54*s.*; Rostock, 47*s.* to 50*s.*; Silesian, red, 46*s.* to 48*s.*; ditto, white, 51*s.*; Pomeranian, Mecklenburg, and Uckermark, red, 46*s.* to 49*s.*; Ghirka, 45*s.* to 47*s.*; Russian, hard, 42*s.* to 45*s.*; Saxonska, 46*s.* to 50*s.*; Danish and Holstein, red, 46*s.* to 49*s.*; American, 45*s.* to 49*s.*; Chilian white, 51*s.*; California, 53*s.*; Australian, 52*s.* to 56*s.*

At Liverpool, British white brought 10*s.* to 10*s.* 4*d.* per cental; ditto, red, 9*s.* 6*d.* to 9*s.* 10*d.*; Canadian white, 10*s.* to 10*s.* 4*d.*; American white, 9*s.* 11*d.* to 10*s.* 6*d.*; ditto, red winter, 8*s.* 9*d.* to 10*s.* 6*d.*; No. 1, Minnesota, 9*s.* 9*d.* to 10*s.* 2*d.*; spring No. 1, 9*s.* 6*d.* to 10*s.*; spring No. 2, 8*s.* 10*d.* to 9*s.* 6*d.*; French, 9*s.* 6*d.* to 9*s.* 9*d.*; Bombay, 9*s.* to 10*s.*; Kurrachee, 8*s.* 3*d.* to 8*s.* 7*d.*; Egyptian, 7*s.* to 9*s.* 11*d.*; Californian, 10*s.* 4*d.* to 11*s.* 1*d.*; Oregon, 10*s.* 11*d.* to 11*s.* 1*d.*; Chilian, 10*s.* to 10*s.* 2*d.*; Australian, 11*s.* 3*d.*

In Paris, with fewer offers, the price of wheat remained unchanged. During the first week of January, 15 provincial markets were on the advance; 58 steady, and 35 on the decline. Prices ranged from 42*s.* to 47*s.* 5*d.* per quarter, choice samples realizing 50*s.*

FLOUR.—The imports into the United Kingdom during the last week in December amounted to 153,343 cwt. The following Monday, January 3, opened in Mark Lane upon fair arrivals of country flour and small

supplies of foreign, mostly in barrels indicating its American origin. The trade was dull and tending downward. The best town-households brought 43*s.* to 47*s.* per 280 pounds; best country-households, 37*s.* to 40*s.*; Norfolk and Suffolk, 30*s.* to 33*s.* In Liverpool, English and Irish superfines were quoted at 37*s.* to 39s. per 280 pounds; ditto, extra, 40*s.* to 42*s.*; French, 39*s.* to 46*s.* 6*d.*; Trieste, 50*s.* to 59*s.*; Chilian, 34*s.* to 36*s.*; Californian, 37*s.* 6*d.* to 38*s.* 6*d.*; American, western and extra State, 26*s.* to 28*s.* per barrel; Baltimore and Philadelphia, 26*s.* to 31*s.*; Ohio and extra, 28*s.* 6*d.* to 31*s.*; Canadian and extra, 27*s.* to 31*s.* 6*d.*

MAIZE.—In Mark Lane, with good supplies, prices were barely maintained, and the demand slack. White was quoted at 30*s.* to 32*s.* per quarter; yellow at 30*s.* to 31*s.* At Liverpool, American white brought 29*s.* to 32*s.* 6*d.* per 480 pounds; Galatz, 32*s.* 9*d.* to 33*s.*; Trieste, 32*s.* to 32*s.* 6*d.*; Dari, 26*s.* 3*d.* to 26*s.* 9*d.* At Paris the best red maize was quoted at 33*s.* per quarter.